Dear Administrator McCarthy,

Hi my name is Steve Lipsky. I'm here to ask you to meet with me because the water by my home is contaminated with explosive levels of methane. My family along with many others families in our neighborhood are in danger. Can you please meet with me to look at test results from Duke and others? I need to know what is happening and I need you to help protect my family, and my community.

Duke University and Isotech Labs both told me the testing sample the Texas Railroad Road Commission used was only good for Isotope testing and would not show my true gas concentration in my water. They both said it would show a much lower number then it really was because the gas would escape out of the bucket. The test they said that needed to be done was the IsoBag test. I told this this to the Texas Railroad Road Commission when they came to do the test. The Texas Railroad Road Commission said they did no care about the gas concentration and they do not do ambient air testing

A Pecks Water Well employee took this picture July 2010. Pecks drilled the well in 2005 and they said the water was good and there was no gas in it. We called them out because the well was having problems pumping and after inspecting it they claimed it was gas locking because it was so full of gas and that the pump would burn out if we continued to use it. They said they never saw a good water well go bad like this before.

My beautiful wife, Shyla and I thought we had built our dream home for our three children and us. Instead our American dream has become a nightmare between the emotional trauma and the financial burden on my family. We need your agency to do its job and protect us. We are in danger, and no one is doing anything. We need water shipped in, we need to know if our houses are explosives, and we need to be made sure we are safe. Please start by meeting with me, and helping us.

Steven P Lipsky
(b) (6)
(b) (6) cell
(b) (6)

Thermo Scientific MIRAN SappiRe XL Model 205B Ambient Analyzer

Ethane is explosive at 30,000 ppm Methane at 50,000 ppm Propane at 21,000 ppm

Michelle Purdue

Range samples 12/28/10

	Ethane	Methane	Propane
Around well head	1.0 ppm	1.5 ppm	0 ppm
Pump house	0 ppm	2.1 ppm	0 ppm
Water tap	0 ppm	1.9 ppm	0 ppm

Stacy Systems same Ambient Air Analyzer sample 8/7/13

	Methane	Propane
Well head vent	140,000 ppm	1700 ppm
Well head vent 10 inches above	3,000 ppm	260 ppm
Water holding tank	90,000 ppm	150 ppm
Kitchen sink	80 ppm	78 ppm
Shower	124 ppm	75 ppm

Steven & Shyla Lipsky

Range sample 1/6/11

	Ethane	Methane	Propane
Sampling area	0 ppm	0 ppm	4 ppm
Purged water discharge	0 ppm	0 ppm	7 ppm
Around well head	0 ppm	0 ppm	10 ppm

Stacy Systems same Ambient Air Analyzer Sample 8/7/13

	Methane	Propane
Well head	158,000 ppm	0 ppm
Well head 10 inches above	68,000 ppm	0 ppm
Purged water discharge	7,200 ppm	0 ppm

Ground water samples from domestic wells Parker county

	Range Recourses testing	Duke University testing
Well 08 Lipsky	01/06/11 Methane 2.3 mg/L, 2.0 mg/L	12/12/12 Methane 40.2 mg/L
Well 02 Purdue	12/28/10 Methane 2.8 mg/L	12/12/12 Methane 54.7 mg/L
Well 26 Dawson	12/29/10 Methane .28 mg/L	12/12/12 Methane 26.8 mg/L

* The test results showed levels of methane above action levels set by USGS (i.e. **10 mg/L**, the level at which wells should be evaluated for venting and ignition sources should be removed from the area). **This presented a potential explosion hazard.**

In the last year all these levels have increased

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I took this picture July 2010. Pecks drilled the well in 2005 and they said the water was good and there was no gas in it. We called them out because the well was having problems pumping and after inspecting it they claimed it was gas locking because it was so full of gas and that the pump would burn out if we continued to use it. They said they never saw a good water well go bad like this before.

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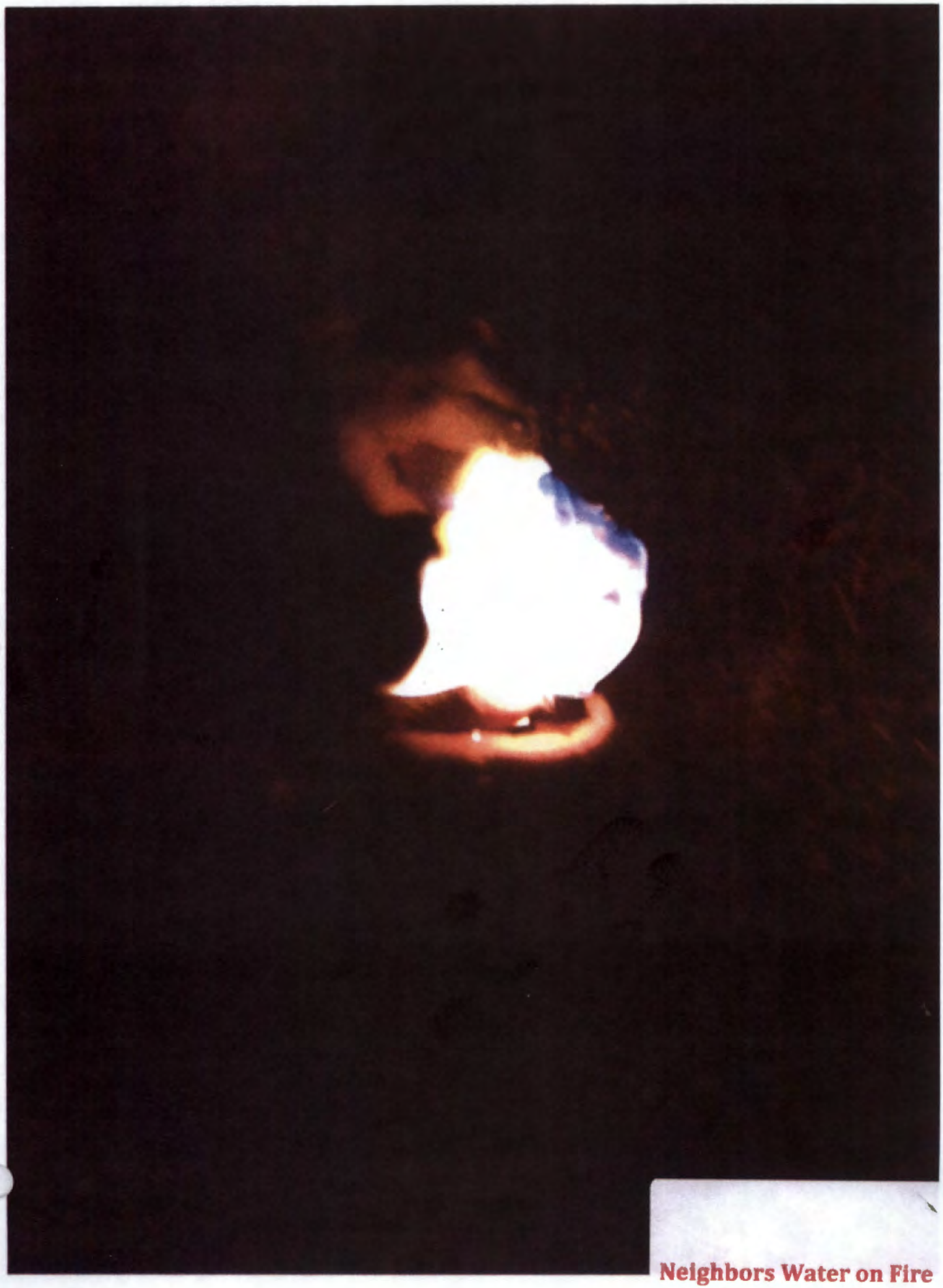
Steven P Lipsky
(b) (6)
(b) (6) cell
(b) (6)

Lipsky Water Pictures

1

Neighbors
Water
Pictures

2



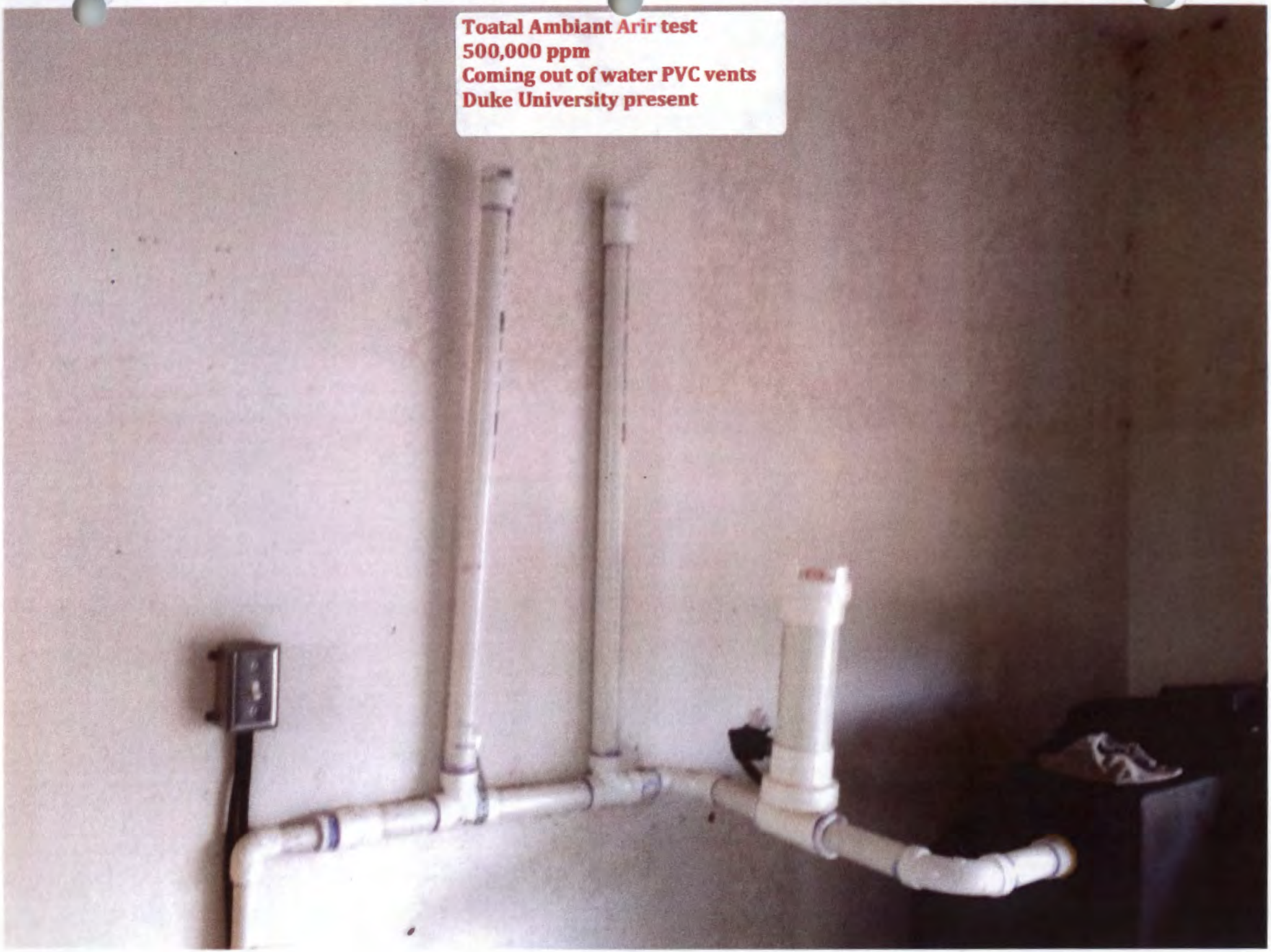
Neighbors Water on Fire

Neighbors Water on Fire

Neighbors Water on Fire

Neighbors Water on Fi


Toatal Ambiant Arir test
500,000 ppm
Coming out of water PVC vents
Duke University present


Toatal Ambiant Arir test
500,000 ppm
Coming out of water PVC vents
Duke University present

Duke Water Testing

3

Sample Date 12/12/2012 | Name: [illegible] | Date Report: 5/14/2013
pH (Field Measured): 9.43 | Address: [illegible]
Conductivity (Field Measured): 959 uS/cm | [illegible]
Total Dissolved Solids (calculated): 536 mg/L | Sample Description: well

Elemental Analyses of Water

	Chloride	Bromide	Nitrate	Sulfate	Alkalinity (HCO3)	Ca	Mg	Sr	Na	Fe	Ba	Mn
Unit [1]	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Primary Standard [3]			45.3								2	
Secondary Standard [4]	250			250						0.3		0.05
Sample Result	28.6	0.1	2.0	2.2	536	1.19	3.4	0.1	259.9	2.2	0.02	0.224

[redacted]

	Li	B	Al	V	Cr	Co	Ni	Cu	Zn	As	Se	Mo
Unit [1]	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Primary Standard [3]					100			1300		10	50	
Secondary Standard [4]			50						5000			
Sample Result	49.0	452.9	5.0	0.5	1.8	[illegible]	1.01	0.8	8.5	[illegible]	1.5	[illegible]

[redacted]

	Ag	Cd	Sb	Pb	Th	U
Unit [1]	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Primary Standard [3]		5	6	5	2	30
Secondary Standard [4]	100					
Sample Result	0.013	0.032	0.069	0.035	[illegible]	[illegible]

[redacted]

Analyses of Dissolved Gas in Water | *Analyses of Water Isotopic Composition*

	Methane	$\delta^{13}C$-CH4	$\delta^{13}C$-DIC	$\delta^{18}O$-H2O	$\delta^{2}H$-H2O
Unit [1]	(mg/L)	‰	‰	‰	‰
Action Level [5]	7.0				
Sample Result	40.2	[illegible]	[illegible]	[illegible]	[illegible]

Notes

[illegible]

2) Concentrations are reported as mg/L (parts per million), µg/L (parts per billion) or mole percent as indicated

3) U.S. EPA Primary Standard [illegible]

4) U.S. EPA Secondary Standard [illegible]

5) PA DEP recommended action level

NA - Not Analyzed as of the date of this report; [illegible]

[illegible]

[illegible]

[illegible] drinking water standard

Steven Lipsky
Duke University Testing
Sample Date 12/12/2012
Methane Level 40.2 mg/L

From: **STEVEN LIPSKY** (b) (6)
Subject: Fwd: Methane Concentration in groundwater wells from August 26, 2013
Date: February 8, 2014 at 7:23 PM
To: Steve Lipsky (b) (6)

Begin forwarded message:

From: STEVEN LIPSKY <(b) (6)
Subject: **Fwd: Methane Concentration in groundwater wells from August 26, 2013**
Date: November 14, 2013 at 3:23:27 PM CST
To: "(b) (6) <(b) (6)

Sent from my iPad

Begin forwarded message:

From: Tom Darrah <(b) (6)
Date: November 14, 2013 at 2:48:34 PM CST
To: STEVEN LIPSKY <(b) (6)>, Rob Jackson <(b) (6)
Subject: **Methane Concentration in groundwater wells from August 26, 2013**

Hi Steve,

I hope all is well for you.

Please find below the methane concentrations from your groundwater wells collected on our August 26 sampling trip. Samples were collected by Rob Jackson and Tom Darrah.

Lipsky-1 (old well): [CH4]=71.5 cc/L

Kind regards,

Tom

Summary of Validated Groundwater Analytical Data and Comparison to Evaluation Standards
Gas Sampling Project - Hood and Parker Counties, TX

Lipsky -- [redacted] (Well 08)

	Field Sample ID	WWW08-LIP-010611	DUP-03-010611 (of Well 08)
	Laboratory ID	11010154-01	11010154-02
	Date of Collection	1/6/2011	1/6/2011
	Well No. (per survey)	Well 08	Well 08
	Well Owner	Lipsky	Lipsky
	Groundwater Condition	Un-treated	Un-treated
Analyte	**Evaluation Standard Value (mg/L)**	**Result (mg/L)**	**Result (mg/L)**
Alkalinity, Total (As $CaCO_3$)		479	482
Alkalinity, Bicarbonate		479	482
Alkalinity, Carbonate		ND	ND
Alkalinity, Hydroxide		ND	ND
Butane	No	0.027	0.022
Ethane	published	0.6	0.52
Ethylene	PCL	ND	ND
Isobutane	available	0.011	0.0095
Methane		2.3	2
Propane		0.15	0.12
Bromide		ND	ND
Calcium		1.15	1.19
Magnesium		0.47	0.476
Potassium		1.09	1.13
Sodium		233	238
Sulfide	No	0.217	0.262
Chloroprene	published	ND	ND
1,2-Dimethylcyclopentane (TIC)	PCL	ND	ND
2-Methylbutane (TIC)	available	0.099 JN	0.09 JN
Cyclopentane (TIC)		0.062 JN	0.047 JN
Glutaraldehyde (TIC)		ND	ND
Total TPH (C6-C35)		ND	ND

TRRP = Texas Risk Reduction Program (30 TAC 350)
PCL = Protective Concentration Level (TRRP-2010; residential values); lowest of $^{GW}GW_{Ing}$ or $^{Air}GW_{Inh\text{-}V}$ pathways
$^{GW}GW_{Ing}$ = Ingestion of Groundwater
$^{Air}GW_{Inh\text{-}V}$ = Inhalation of volatiles from groundwater (30-acre)
** The total MCL for trihalomethanes (bromodichloromethane, bromoform, chloroform, & dibromochloromethane) is 0.08 mg/L
MCL = Maximum Contaminant Level (http://water.epa.gov/drink/contaminants/basicinformation/index.cfm)
Bold font indicates exceedance of the Evaluation Standard
ND = Not detected above the Sample Detection Limit (SDL)
ND* = Not detected above the SDL; the SDL is higher than the Evaluation Standard due to analyte characteristics
J = Estimated value
TIC = Tentatively Identified Compound
JN = Tentatively identified at the estimated concentration
R = Rejected value
UJ = Not detected above the SDL; value is an estimate
Data modified based on validation is highlighted in gray

Sample Date	12/12/2012	**...me:** Perdue	**Data Report**	5/14/2013
pH (Field Measured)	10.43	**Address:**		
Conductivity (Field Measured)	1105 µS/cm	Weatherford TX		
Total Dissolved Solids (calculated)	700 mg/L	**Sample Description:** well		

Elemental Analyses of Water

	Chloride	Bromide	Nitrate	Sulfate	Alkalinity (HCO3)	Ca	Mg	Sr	Na	Fe	Ba	Mn
Unit [2]	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Primary Standard [3]			45.5								2	
Secondary Standard [4]	250			250						0.3		0.05
Sample Result	96.1	0.4	0.01	29.8	589	1.47	0.6	0.2	283.2	0.1	0.04	0.002

	Li	B	Al	V	Cr	Co	Ni	Cu	Zn	As	Se	Mo
Unit [2]	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Primary Standard [3]					100			1300		10	50	
Secondary Standard [4]			50						5000			
Sample Result	58.7	758.4	21.1	1.5	4.8	bdl	bdl	bdl	2.7	0.5	2.5	2.2

	Ag	Cd	Sb	Pb	Tl	U
Unit [2]	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Primary Standard [3]		5	6	5	2	30
Secondary Standard [4]	100					
Sample Result	bdl	0.031	bdl	0.002	bdl	bdl

Analyses of Dissolved Gas in Water

Analyses of Water Isotopic Composition

	Methane	δ^{13}C-CH4	δ^{13}C-DIC	δ^{18}O-H2O	δ^{2}H-H2O
Unit [2]	(mg/L)	‰	‰	‰	‰
Action level [5]	7.0				
Sample Result	54.7	-54.3	-1.5	-5.6	-33.7

Notes:

(*) Analyses are qualitative only

(2) Concentrations are reported as mg/L (parts per million), µg/L (parts per billion) or mole percent as indicated.

(3) U.S. EPA Primary Standard. Legally enforcable and designed to protect the public health. If blank, there is currently no EPA recommended standard.

(4) U.S. EPA Secondary Standard. Non-enforcable guidelines designed to protect against cosmetic or aesthetic impacts on drinking water. If blank no EPA recommended standard.

(5) PA DEP recommended action level

NA = Not Analyzed as of the date of this report, na = not analyzed; nd = non detect

0 = less than the reporting limit (below detection limit)

Highlighted in yellow = exceeds secondary drinking water standard

Highlighted in red = exceeds primary drinking water standard

Shelly Purdue
Duke University Testing
Sample Date 12/12/2012
Methane Level 54.7 mg/L

Summary of Validated Groundwater Analytical Data and Comparison to Evaluation Standards
Gas Sampling Project - Hood and Parker Counties, TX

(b) (6) **(Well 02)**

	Field Sample ID	WWW02-PUR-122810
	Laboratory ID	10120859-05
	Date of Collection	12/28/2010
	Well No. (per survey)	Well 02
	Well Owner	Purdue
	Groundwater Condition	Un-treated
Analyte	Evaluation Standard Value (mg/L)	Result (mg/L)
Alkalinity, Total (As $CaCO_3$)		502
Alkalinity, Bicarbonate		502
Alkalinity, Carbonate		ND
Alkalinity, Hydroxide		ND
Butane	No	0.0025
Ethane	published	0.36
Ethylene	PCL	ND
Isobutane	available	0.0024
Methane		2.8
Propane		0.0041
Bromide		ND
Calcium		1.82
Magnesium		0.754
Potassium		1.37
Sodium		304
Sulfide	No	0.0992
Chloroprene	published	ND
1,2-Dimethylcyclopentane (TIC)	PCL	ND
2-Methylbutane (TIC)	available	0.0036 JN
Cyclopentane (TIC)		ND
Glutaraldehyde (TIC)		ND
Total TPH (C6-C35)		ND

TRRP = Texas Risk Reduction Program (30 TAC 350)
PCL = Protective Concentration Level (TRRP-2010; residential values); lowest of $^{GW}GW_{Ing}$ or $^{Air}GW_{Inh\text{-}V}$ pathways
$^{GW}GW_{Ing}$ = Ingestion of Groundwater
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** The total MCL for trihalomethanes (bromodichloromethane, bromoform, chloroform, & dibromochloromethane) is 0.08 mg/L
MCL = Maximum Contaminant Level (http://water.epa.gov/drink/contaminants/basicinformation/index.cfm)
Bold font indicates exceedance of the Evaluation Standard
ND = Not detected above the Sample Detection Limit (SDL)
ND* = Not detected above the SDL; the SDL is higher than the Evaluation Standard due to analyte characteristics
J = Estimated value
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JN = Tentatively identified at the estimated concentration
Data modified based on validation is highlighted in gray

Sample Date 12/12/2012 — Owner Dawson — Date Report 5/14/2013

pH (Field Measured) 6.26

Conductivity (Field Measured) 822 µS/cm

Total Dissolved Solids (calculated) 616 mg/L

Address:

Weatherford TX

Sample Description: well

Dissolved Anions of Water

	Chloride	Bromide	Nitrate	Sulfate	Alkalinity (HCO3)	Ca	Mg	K	Na	Fe	Ba	Mn
Units [2]	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Primary Standard [3]			45.5								2	
Secondary Standard [4]	250			250						0.3		0.05
Sample Result	79.0	0.3	0.0	49.8	481	3.37	0.3	0.3	249.4	0.04	0.04	0.002

	U	B	Al	V	Cr	Co	Ni	Cu	Zn	As	Se	Mo
Units [2]	(µg/L)	(ug/L)	(µg/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(µg/L)	(ug/L)	(µg/L)	(µg/L)	(ug/L)
Primary Standard [3]					100			1300		10	50	
Secondary Standard [4]			50						5000			
Sample Result	30.1	460.4	2.2	1.1	4.2	bdl	bdl	11.3	8.2	bdl	0.4	bdl

	Ag	Cd	Sb	Pb	Th	U
Units [2]	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(µg/L)	(ug/L)
Primary Standard [3]		5	6	5	2	30
Secondary Standard [4]	100					
Sample Result	0.002	bdl	bdl	1.772	bdl	bdl

Analysis of Dissolved Gas in Water — *Analysis of Water Isotopic Composition*

	Methane	δ^{13}C-CH4	δ^{13}C-DIC	δ^{2}H-H2O	δ^{18}O-H2O
Units [2]	(mg/L)	‰	‰	‰	‰
Action level [5]	7.0				
Sample Result	26.8	-65.2	-9.1	-3.6	-33.1

Notes:

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(5) PA DEP recommended action level

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< = less than the reporting limit (below detection limit)

Carroll Dawson
Duke University Testing
Sample Date 12/12/2012
Methane Level 26.8 mg/L

p.1

In 18 13 08:01p

Summary of Validated Groundwater Analytical Data and Comparison to Evaluation Standards
Gas Sampling Project - Hood and Parker Counties, TX

Dawson - [redacted] (Well 26)

	Field Sample ID	WWW26-DAW-122910
	Laboratory ID	10120927-02
	Date of Collection	12/29/2010
	Well No. (per survey)	Well 26
	Well Owner	Dawson
	Groundwater Condition	Potentially Treated
Analyte	**Evaluation Standard Value (mg/L)**	**Result (mg/L)**
Alkalinity, Total (As $CaCO_3$)		389
Alkalinity, Bicarbonate		389
Alkalinity, Carbonate		ND
Alkalinity, Hydroxide		ND
Butane	No	ND
Ethane	published	0.015
Ethylene	PCL	ND
Isobutane	available	ND
Methane		0.28
Propane		ND
Bromide		ND
Calcium		1.41
Magnesium		0.625
Potassium		1.16
Sodium		254
Sulfide	No	ND
Chloroprene	published	ND
1,2-Dimethylcyclopentane (TIC)	PCL	ND
2-Methylbutane (TIC)	available	ND
Cyclopentane (TIC)		ND
Glutaraldehyde (TIC)		ND
Total TPH (C6-C35)		ND

TRRP = Texas Risk Reduction Program (30 TAC 350)

PCL = Protective Concentration Level (TRRP-2010; residential values); lowest of $^{GW}GW_{Ing}$ or $^{Air}GW_{Inh\text{-}V}$ pathways

$^{GW}GW_{Ing}$ = Ingestion of Groundwater

$^{Air}GW_{Inh\text{-}V}$ = Inhalation of volatiles from groundwater (30-acre)

** The total MCL for trihalomethanes (bromodichloromethane, bromoform, chloroform, & dibromochloromethane) is 0.08 mg/L

MCL = Maximum Contaminant Level (http://water.epa.gov/drink/contaminants/basicinformation/index.cfm)

Bold font indicates exceedance of the Evaluation Standard

ND = Not detected above the Sample Detection Limit (SDL)

ND* = Not detected above the SDL; the SDL is higher than the Evaluation Standard due to analyte characteristics

J = Estimated value

TIC = Tentatively Identified Compound

Data modified based on validation is highlighted in gray

Sample Date	12/12/2012	**Name:** Struhs Guest House	**Data Report**	5/14/2013
pH (Field Measured)	9.42	**Address:**	0	
Conductivity (Field Measured)	1124 µS/cm		Weatherford TX	
Total Dissolved Solids (calculated)	952 mg/L	**Sample Description:** well		

Elemental Analyses of Water

	Chloride	Bromide	Nitrate	Sulfate	Alkalinity (HCO3)	Ca	Mg	Sr	Na	Fe	Ba	Mn
Unit [2]	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Primary Standard [3]			45.5								2	
Secondary Standard [4]	250			250						0.3		0.05
Sample Result	247.1	0.9	0.0	112.2	464	3.20	1.4	0.3	359.5	0.2	0.08	0.004

	Li	B	Al	V	Cr	Co	Ni	Cu	Zn	As	Se	Mo
Unit [2]	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Primary Standard [3]					100			1300		10	50	
Secondary Standard [4]			50						5000			
Sample Result	77.0	481.5	40.3	3.8	11.0	bdl	bdl	11.3	35.2	bdl	2.0	0.5

	[redacted]					
Unit [2]	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Primary Standard [3]		5	6	5	2	30
Secondary Standard [4]	100					
Sample Result	bdl	0.057	bdl	1.176	bdl	bdl

Analyses of Dissolved Gas in Water

Analyses of Water Isotopic Composition

	Methane	δ^{13}C-CH4	δ^{13}C-DIC	δ^{18}O-H2O	δ^{2}-H2O
Unit [2]	(mg/L)	‰	‰	‰	‰
Action level [5]	7.0				
Sample Result	12.5	-46.1	-10.2	-4.7	-28.7

Notes:

(*) Analyses are qualitative only

(2) Concentrations are reported as mg/L (parts per million), µg/L (parts per billion) or mole percent as indicated.

(3) U.S. EPA Primary Standard. Legally enforcable and designed to protect the public health. If blank, there is currently no EPA recommended standard.

(4) U.S. EPA Secondary Standard. Non-enforcable guidelines designed to protect against cosmetic or aesthetic impacts on drinking water. If blank no EPA recommended standard.

(5) PA DEP recommended action level

NA = Not Analyzed as of the date of this report, na = not analyzed; nd = non detect

0 = less than the reporting limit (below detection limit)

Highlighted in yellow = exceeds secondary drinking water standard

Highlighted in red = exceeds primary drinking water standard

Struhs Guest House
Duke University Testing
Sample Date 12/12/2012
Methane Level 12.5 mg/L

Summary of Validated Groundwater Analytical Data and Comparison to Evaluation Standards
Gas Sampling Project - Hood and Parker Counties, TX

Struths – (b) (6) **(Well 18)**

	Field Sample ID	WWW18-STR-123010
	Laboratory ID	10120973-06
	Date of Collection	12/30/2010
	Well No. (per survey)	Well 18
	Well Owner	Struths
	Groundwater Condition	Un-treated
Analyte	**Evaluation Standard Value (mg/L)**	**Result (mg/L)**
Alkalinity, Total (As $CaCO_3$)		344
Alkalinity, Bicarbonate		344
Alkalinity, Carbonate		ND
Alkalinity, Hydroxide		ND
Butane	No	ND
Ethane	published	0.037
Ethylene	PCL	ND
Isobutane	available	ND
Methane		0.96
Propane		ND
Bromide		0.323 J
Calcium		2.04
Magnesium		0.853
Potassium		1.48
Sodium		312
Sulfide	No	8.55
Chloroprene	published	ND
1,2-Dimethylcyclopentane (TIC)	PCL	ND
2-Methylbutane (TIC)	available	ND
Cyclopentane (TIC)		ND
Glutaraldehyde (TIC)		ND
Total TPH (C6-C35)		ND

TRRP = Texas Risk Reduction Program (30 TAC 350)

PCL = Protective Concentration Level (TRRP-2010; residential values); lowest of $^{GW}GW_{Ing}$ or $^{Air}GW_{Inh\text{-}V}$ pathways

$^{GW}GW_{Ing}$ = Ingestion of Groundwater

$^{Air}GW_{Inh\text{-}V}$ = Inhalation of volatiles from groundwater (30-acre)

** The total MCL for trihalomethanes (bromodichloromethane, bromoform, chloroform, & dibromochloromethane) is 0.08 mg/L

MCL = Maximum Contaminant Level (http://water.epa.gov/drink/contaminants/basicinformation/index.cfm)

Bold font indicates exceedance of the Evaluation Standard

ND = Not detected above the Sample Detection Limit (SDL)

ND* = Not detected above the SDL; the SDL is higher than the Evaluation Standard due to analyte characteristics

J = Estimated value

TIC = Tentatively Identified Compound

Data modified based on validation is highlighted in gray

Sample Date 12/12/2012

[redacted] pH (Field Measured) 8.57

Conductivity (Field Measured) 1975 µS/cm

Total Dissolved Solids (calculated) 1190 mg/L

[redacted] ame: Struhs House

A[redacted] 0

Weatherford TX

Sample Description: well

Data Report 5/14/2013

Elemental Analyses of Water

Unit [2]	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Primary Standard [3]			45.5								2	
Secondary Standard [4]	250			250						0.3		0.05
Sample Result	[redacted]	1.0	0.01	121.3	419	29.67	8.9	0.9	426.8	0.1	0.09	0.004

[redacted]

	[redacted]											
Unit [2]	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Primary Standard [3]					100			1300		10	50	
Secondary Standard [4]			50						5000			
Sample Result	86.8	485.6	40.4	6.0	17.2	bdl	bdl	bdl	3.6	bdl	4.1	0.3

[redacted]

	[redacted]					
Unit [2]	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Primary Standard [3]		5	6	5	2	30
Secondary Standard [4]	100					
Sample Result	bdl	bdl	bdl	0.001	bdl	0.285

[redacted]

Analyses of Dissolved Gas in Water

Analyses of Water Isotopic Composition

	Methane	δ^{13}C-CH4	δ^{13}C-DIC	δ^{2}H-H2O	δ^{2}H-H2O
Unit [2]	(mg/L)	‰	‰	‰	‰
Action level [5]	7.0				
Sample Result	16.9	-47.8	-11.8	-3.6	-22.4

Notes:

(*) Analyses are qualitative only

(2) Concentrations are reported as mg/L (parts per million), µg/L (parts per billion) or mole percent as indicated.

(3) U.S. EPA Primary Standard. Legally enforcable and designed to protect the public health. If blank, there is currently no EPA recommended standard.

(4) U.S. EPA Secondary Standard. Non-enforcable guidelines designed to protect against cosmetic or aesthetic impacts on drinking water. If blank no EPA recommended standard.

(5) PA DEP recommended action level

NA = Not Analyzed as of the date of this report, na = not analyzed; nd = non detect

0 = less than the reporting limit (below detection limit)

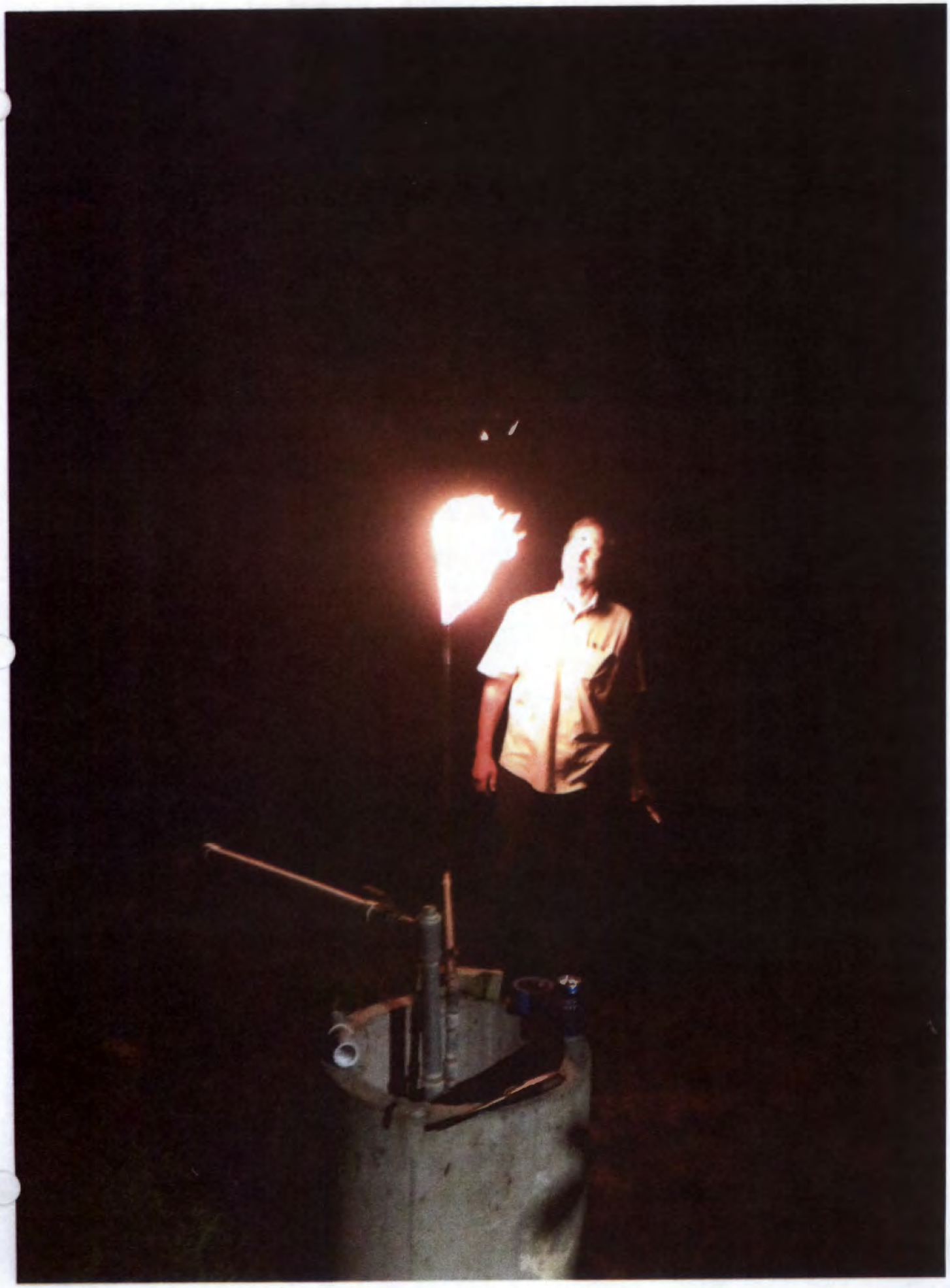
highlighted in yellow = exceeds secondary drinking water standard

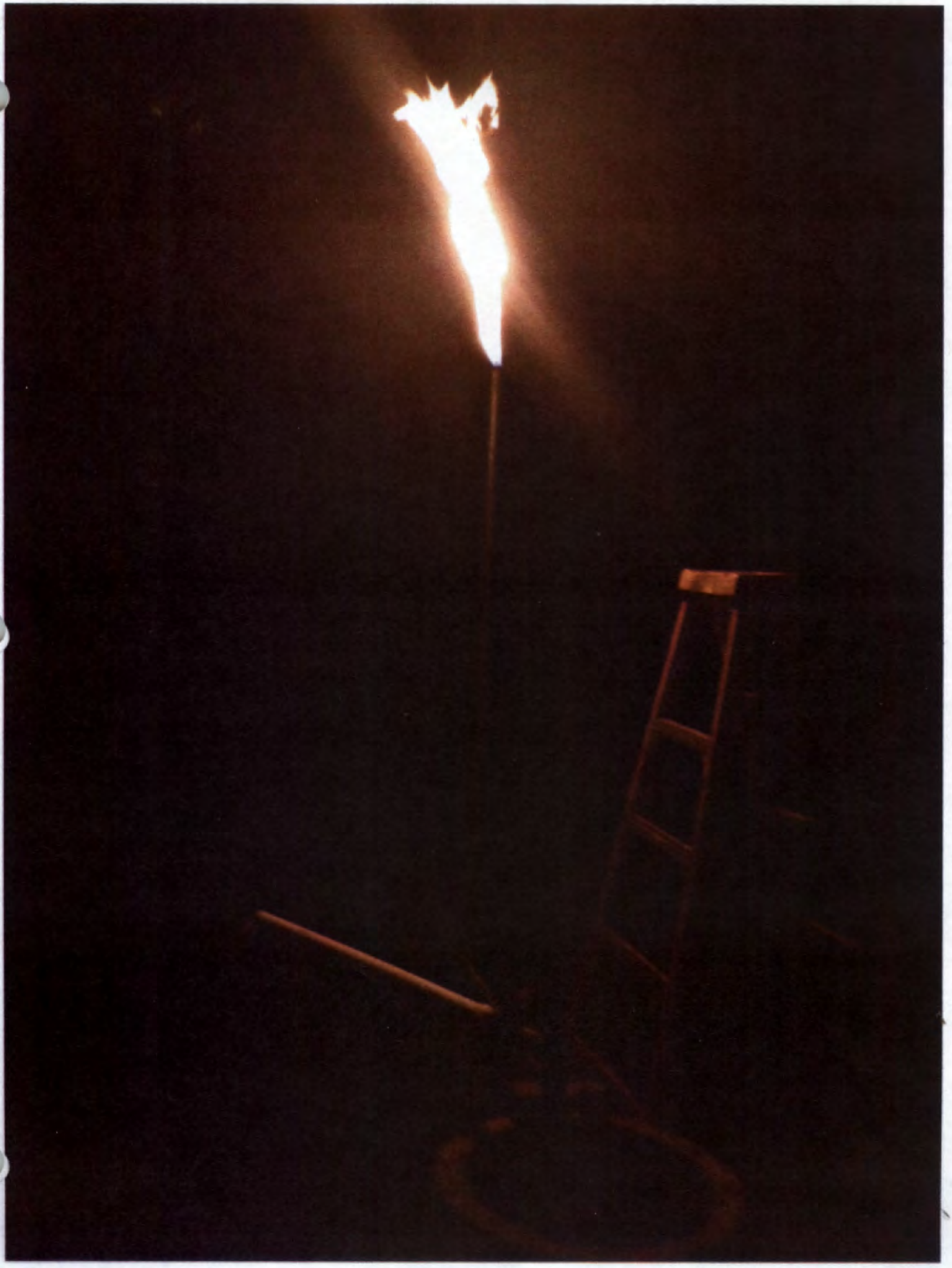
highlighted in red = exceeds primary drinking water standard

Struhs House
Duke University Testing
Sample Date 12/12/2012
Methane Level 16.9 mg/L

Water Well
Head space
Vent Pictures

4





Ambient Air
Testing ppm

5

STACY SYSTEMS, INC.
Clinical Environmental Consulting

501 Post Oak Drive
Newark, Texas 76071
(817) 489-5000
(800)-982-1944

Mr. Steven Lipsky
(b) (6)

Dear Mr. Lipsky:

We are glad to have been of service to you on August 7, 2013 in reporting the extent of gas contamination in your water well. Our opinion is the same as yours and the other experts with Armstrong Forensic that the situation is potentially explosive and dangerous to the health of anyone using the water. As detected by our Miran 205B Infrared spectrophotometer, the levels of gas and testing locations are listed below:

Lipsky
(b) (6)

Gas and testing location	Amount of gas in Parts per Million
Methane – top of water well head	158,000 PPM
Methane – 10 inches above well head	50,000 PPM
Propane – at well head	None detected
Methane and Propane - Inside private residence	None detected

Purdue
(b) (6)

Gas and testing location	Amount of gas in Parts per Million
Methane - Water pump vent	140,000 PPM
Methane – 10 inches above pump vent	3,000 PPM
Methane – Water holding tank	90,000 PPM
Propane – Water pump vent	17,000 PPM
Propane – 10 inches above well vent	1,700 PPM
Propane – 10 inches above holding tank	150 PPM
Methane –Inside private residence with sink water running	80 PPM
Propane – Inside private residence with sink water running	78 PPM
Methane – Inside residence lavatory with shower running	124 PPM
Propane – Inside residence lavatory with shower running	75 PPM

We suggest that the Railroad Commission be notified of these results to determine whether cause may be the recent natural gas well installed in the area(s). Please contact us or Armstrong Forensic for any further testing desired.

Deborah H. Anders

Deborah H. Anders, President

Table 2
Summary of Field Screening Readings
Thermo Scientific MIRAN SapphIRe XL Model 205B Ambient Analyzer
Gas Sampling Project - Hood and Parker Counties, TX

Well No. [a]	Well Owner Name [a]	Well ID	Date	Location	Ethane LEL = 30,000 ppm		Methane LEL = 50,000 ppm		Propane LEL = 21,000 ppm		Well Headspace Sample ID (Call #5 bag sent to Isotech)
1	Rodney & Geraldine Wells	WW01	12/27/10	Gravel Drive	0.0	(13:50)	0.0	(14:15)	14.0	(13:35)	WWG01-WEL-122710
				Well Shed	4.0	(13:55)	13.9	(14:25)	61.0	(13:40)	
				Purged Water Discharge	0.0	(14:00)	0.0	(14:20)	30.0	(13:45)	
2	Michelle Purdue	WW02	12/28/10	Around Well Head	1.0	(15:05)	1.5	(15:25)	0.0	(14:50)	WWG02-PUR-122810
				Pump House	0.0	(15:10)	2.1	(15:30)	0.0	(14:55)	
				Water Tap	0.0	(15:15)	1.9	(15:35)	0.0	(15:00)	
3	Kenneth Cliff & Teresa Carr	WW03	No well at this location								
4	Chanda D. Abbott	WW04	12/29/10	Sampling Area	0.0	(12:20)	1.4	(11:55)	0.0	(12:30)	WWG04-ABB-122910
				Purged Water Discharge	0.0	(12:15)	0.2	(12:00)	0.0	(12:35)	
				Around Well Head	0.0	(12:10)	0.0	(12:05)	0.0	(12:40)	
5	Brent A. Mauldin	WW05	12/29/10	Sampling Area	0.0	(10:15)	1.3	(09:55)	0.0	(10:25)	WWG05-MAU-122910
				Purged Water Discharge	0.0	(10:20)	3.9	(10:00)	5.0	(10:35)	
				Around Well Head	0.0	(10:10)	0.0	(10:05)	0.0	(10:30)	
6	Amanda M. Thompson	WW06	12/28/10	Pump House	1.0	(17:15)	4.0	(16:50)	0.0	(17:20)	WWG06-THO-122810
				Around Well Head	0.0	(16:10)	3.2	(16:55)	0.0	(17:25)	
				Background	0.0	(17:05)	1.0	(17:00)	0.0	(17:40)	
7	Jeff W. Merryman	WW07	12/29/10	Sampling Area	6.0	(08:30)	4.5	(08:05)	0.0	(08:35)	WWG07-MER-122910
				Purged Water Discharge	3.0	(08:25)	8.2	(06:10)	7.0	(08:40)	
				Around Well Head	3.0	(08:20)	9.2	(08:15)	0.0	(08:45)	
8	Stephen & Shyla Lipsky	WW08	01/06/11	Sampling Area	0.0	(14:49)	0.0	(14:44)	4.0	(14:30)	WWG08-LIP-010611A
				Purged Water Discharge	0.0	(14:07)	0.0	(14:02)	7.0	(14:16)	WWG08-LIP-010611B
				Around Well Head	0.0	(15:00)	0.0	(14:55)	10.0	(14:36)	DUP-03-010611
				Downstairs (Bedroom)	0.0	(13:25)	0.0	(13:19)	3.0	(13:32)	
				Upstairs (Game room)	0.0	(13:49)	0.0	(13:55)	19.0	(13:39)	
9	J. Tom Stites	WW09	12/30/10	Sampling Area	0.0	(08:50)	0.0	(08:35)	0.0	(08:20)	WWG09-STI-123010
				Purged Water Discharge	0.0	(08:55)	11.6	(08:40)	20.0	(08:25)	
				Well Head	0.0	(09:00)	0.0	(08:45)	0.0	(08:30)	
10	Devyn Hayley	WW10	12/29/10	Tank Storage Building	0.3	(10:35)	1.2	(10:30)	0.0	(10:50)	WWG10-HAY-122910
11	Gail Sanders	WW11	12/30/10	Sampling Area	0.0	(13:00)	0.0	(13:10)	0.0	(12:40)	WWG11-SAN-123010
				Discharge Area	0.0	(13:05)	1.4	(13:15)	0.0	(12:45)	
				Well Head	0.0	(12:55)	3.4	(13:20)	3.0	(12:50)	
12	George Mercer	WW12	Not sampled - Access not granted								
13	Tom Struths	WW13	12/30/10	Well Head	0.0	(15:15)	0.1	(14:50)	0.0	(15:25)	WWG13-STR-123010
				Buried Water Storage Tank Area	0.0	(15:10)	0.0	(14:55)	0.0	(15:30)	WWG13ST-STR-123010
				Ornamental Fountain	0.0	(15:00)	0.0	(15:05)	0.0	(15:35)	
14A	Stephen & Carol Hurst	WW14A	12/28/10	Around Well Head	1.0	(11:40)	1.9	(11:15)	1.0	(12:00)	WWG14A-HUR-122810
				Pump House	1.0	(11:35)	1.6	(11:20)	0.0	(11:55)	
14B	Stephen & Carol Hurst	WW14B	12/28/10	Around Well Head	1.0	(11:30)	4.2	(11:25)	0.0	(11:50)	WWG14B-HUR-122810
15	Stephen & Carol Hurst	WW15	12/28/10	Sample Area	0.0	(11:30)	0.0	(11:05)	0.0	(11:45)	WWG15-HUR-122810
				Pump House	0.0	(11:35)	0.0	(11:10)	0.0	(11:50)	
				Around Well Head	0.0	(11:25)	0.0	(11:20)	0.0	(11:55)	

Table 2
Summary of Field Screening Readings
Thermo Scientific MIRAN SapphIRe XL Model 205B Ambient Analyzer
Gas Sampling Project - Hood and Parker Counties, TX

Well No. [a]	Well Owner Name [a]	Well ID	Field Reading / Concentration in ppm (Time of Reading in 24-Hour Format)						Well Headspace Sample ID (Call #5 bag sent to Isotech)
			Date	Location	Ethane LEL = 30,000 ppm		Methane LEL = 50,000 ppm		Propane LEL = 21,000 ppm	
16	Dolores A & Gary R Mills	WW16	12/28/10	Sample Area	0.0	(13:10)	6.0	(12:55)	0.0	(13:25)	WWG16-MIL-122810
				Purged Water Discharge	0.0	(13:15)	1.5	(13:00)	0.0	(13:30)	
				Around Well Head	0.0	(13:20)	0.0	(13:05)	0.0	(13:35)	
17	Jeffery J. Davis	WW17	12/30/10	Pump House	0.0	(09:50)	6.6	(09:20)	0.0	(09:55)	WWG17-DAV-123010
				Around Well Head	0.0	(09:45)	4.1	(09:25)	0.0	(10:00)	WWG17ST-DAV-123010
				Background	0.0	(09:40)	2.2	(09:30)	0.0	(10:05)	
18	Thomas & Elizabeth Struths	WW18	12/30/11	Well Head	0.0	(15:05)	0.6	(15:00)	53.0	(15:25)	WWG18-STR-123010
				Water Storage Area	0.0	(15:10)	0.0	(15:15)	0.0	(15:20)	
19	Joseph & Rebecca Williams	WW19	12/28/10	Sampling Area	0.0	(16:15)	6.8	(15:50)	0.0	(16:25)	WWG19-WIL-122810
				Purged Water Discharge	0.0	(16:10)	0.0	(15:55)	3.0	(16:30)	
				Around Well Head	0.0	(16:05)	0.0	(16:00)	0.0	(16:35)	
20	Dennis Huffman	WW20	12/31/10	Sample Area	0.0	(16:00)	0.0	(16:15)	0.0	(15:45)	WWG20-HUF-123110
				Purged Water Discharge	0.0	(16:10)	0.0	(16:35)	2.0	(15:55)	
				Around Well Head	0.0	(16:05)	0.4	(16:20)	0.0	(15:50)	
21	Kirk & Brenda Van Newkirk	WW21	12/31/10	Pump House	1.0	(18:05)	1.8	(18:00)	0.0	(18:20)	No gas sample collected; access blocked by large planter
				Background	1.0	(18:10)	0.8	(17:55)	0.0	(18:15)	
22	Timothy & Sheryl Simpson	WW22	12/31/10	Sample Area	0.0	(10:30)	0.0	(10:10)	13.0	(11:00)	WWG22-SIM-123110
				Purged Water Discharge	0.0	(10:35)	0.3	(10:15)	8.0	(10:50)	
				Around Well Head	0.0	(10:25)	0.0	(10:20)	8.0	(10:55)	
23	David & Georgia Husby	WW23	01/07/11	Background	0.0	(10:50)	0.0	(11:25)	0.0	(10:45)	WWG23-HUS-010711
				Purged Water Discharge	0.0	(11:10)	0.0	(11:30)	0.0	(11:00)	
				Around Well Head	0.0	(11:15)	0.0	(11:20)	0.0	(10:55)	
24	Robert & Pamela Smith	WW24	12/30/10	Sample Area	0.0	(10:45)	0.0	(11:10)	0.0	(11:15)	WWG24-SMI-123110
				Purged Water Discharge	2.0	(10:50)	0.0	(11:05)	0.0	(11:15)	
				Around Well Head	1.0	(10:55)	0.0	(11:00)	0.0	(11:20)	
25	Jeff Matthews	WW25	12/30/10	Pump House	0.0	(11:50)	1.8	(11:25)	0.0	(12:00)	WWG25-MAT-123010
				Around Well Head	0.0	(11:45)	1.5	(11:30)	0.0	(12:05)	
				Background	0.0	(11:40)	1.7	(11:35)	0.0	(12:10)	
26	B. Carroll Dawson	WW26	12/29/10	Purged Water Discharge	0.0	(09:00)	0.1	(09:05)	0.0	(08:40)	WWG26-DAW-122910
				Around Well Head	0.0	(08:55)	0.6	(09:10)	0.0	(08:35)	
				Outside Garage	0.0	(08:50)	0.0	(09:15)	0.0	(08:30)	
28	Morris Oujesky	WW28	12/28/10	North of house	3.0	(08:41)	0.0	(08:16)	0.0	(08:45)	WWG28-OUJ-122810
				Around Well Head	3.0	(08:38)	3.5	(08:21)	0.0	(08:50)	DUP-01-122810
				Purged Water Discharge	2.0	(08:31)	5.2	(08:26)	0.0	(08:55)	
29	Brian Foster	WW29	12/29/10	Around Well Head	0.0	(11:50)	0.1	(12:00)	0.0	(12:30)	No gas sample collected; well outside 3000 ft radius
				Spigot Near Well Head	0.0	(11:45)	0.7	(11:40)	0.0	(12:25)	
				Inside Garage	0.0	(12:10)	0.9	(12:05)	0.0	(12:20)	

[a] Per survey/information provided by Range Resources
LEL = Lower Explosive Limit (Source: http://www.matheson-trigas.com/mathPortal/_pdfs/products/Lower%20(LEL)%20&%20Upper%20(UEL)%20Explosive%20Limits%20.pdf)

Local News
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Disk Info

6

by BRETT SHIPP
WFAA
Posted on September 24, 2013 at 9:18 PM
Updated Thursday, Sep 26 at 1:40 AM
Gallery

http://www.wfaa.com/news/investigates/Water-contamination-in--225126652.html

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Water contamination in Parker County exceeds explosive limits

PARKER COUNTY — Remember the images of Parker County residents whose water wells catch on fire? Now they say their problem has gone from bad to explosive.
They also say they have the test results to back up their assertions.
A handful of Parker County residents said it all started around 2009 when their tap water started to bubble and stink.
Their curiosity flowed into suspicion.
Their suspicion evolved into disgust.
Their water wells were filling with volumes of methane gas. (Disk file

21) Logic told them two newly drilled natural gas wells near their homes were to blame. (Disk file 22)
Their complaints to state oil and gas regulators at the Texas Railroad Commission went nowhere.
Tests performed by the drillers themselves showed only minor contamination. (Disk file 23) What methane was there, they claimed, has been naturally occurring for years.
They said one of the residents' wells was actually drilled 70 feet too deeply into a shallow gas-bearing formation called the Strawn.
By 2011, the Texas Railroad Commission declared the case closed.
Unwilling to give up, homeowner Steve Lipsky has now paid for his own series of tests. He used the same instrumentation and the same kind of tests conducted two years ago. (Disk file 24)
The findings now show the levels of methane coming from their water wells are off the charts.
One day earlier this month, the fumes coming out of Lipsky's water well measured 162,000 parts per million; 50,000 ppm is considered "explosive."
"And just by knowing that the methane levels normally at 50,000 parts per million is extremely explosive, this is scary," said air monitoring technician Buddy Alexander with Stacy Systems of Fort Worth.
A few blocks away, at Shelly Perdue's water well, the same test was conducted with the same instrumentation. (Disk file 25)
Inside Perdue's house with the tap water running, the technician discovered another danger — the inside ambient air detecting 63 parts per million of methane. When asked if that figure represents a dangerous level of gas in Perdue's home, Alexander replied: "Yes it is; yes it is."
So now, more than ever, Lipsky and Perdue suspect the gas well just down the street is to blame.
An environmental scientist hired by Lipsky, Dr. Bryce Payne of Pennsylvania, witnessed the recent tests and even conducted his own. His greatest concern: A buildup of methane gas inside Perdue's water tank.
"That holding tank was functionally a methane bomb that could ignite at any time, explosively," Payne said.
But tests conducted in 2010 by the drilling company, Range Resources, showed only minute levels of methane around Perdue's

water wellhead.
The company hired by Lipsky recorded 140,000 parts per million in that same space three years later. The air around Lipsky's water wellhead tested even higher — 158,000 parts per million of methane. (Disk file 26)
Yet the same tests done by the drilling company in 2010 recorded zero methane. (Disk file 27)
Zero.
But there's more.
Last December, Duke University scientists measured methane levels in Lipsky and Perdue's water itself. Anything above 10 parts per million is considered unacceptable.
Duke's researchers found methane levels of 41 and 54 parts per million. (Disk file 28)
Tests conducted by Range Resources measured methane levels of only 2.3 and 2.8 parts per million. (Disk file 29)
Next door to Lipsky, Elizabeth Falconer's well water is so contaminated with chloride or salt, the wellhead installed in 2000 is corroded and flaking. (Disk file 30) She has spent thousands of dollars on a water filtration system since the gas wells were drilled in 2009.
"My water was fine when we first moved here in 2000," Falconer said. "Today, without super cleaning it, I wouldn't drink it."
Earlier this summer, News Eight obtained documents showing that one of the two nearby gas wells called the Butler Unit experienced problems right after it was drilled. Natural gas pressure was building-up at the wellhead.
News 8 later discovered that the drilling company had not sealed off all of the down well gas zones with cement, as recommended throughout the industry.
A recently released Duke University study in Pennsylvania links well water contamination with faulty gas well construction.
Dr. Payne believes failure to properly cement the well is causing the problem here in Texas. "It is my opinion that it is likely to be because the amount of the contamination, the speed of onset, and recent observations indicate that it's spreading over an area that looks like it's spreading away from location of the Teal and Butler wells," Payne said.

Lipsky said regardless of the cause, he knew the contamination was worse than was reported to the state by Range back in 2010. (Disk file 31) Now he wants the state to act.

"I don't feel any vindication until the Railroad Commission or someone comes forward and admits that this is a severe problem," he said. "Regardless of who did it or what caused it, we need to determine what's happening, what's causing it, and try to stop it."

Range Resources stands by its test results from 2010, and says evidence and testimony has proven that its operations are not causing water well contamination which, again, they say is naturally occurring in that area.

They say evidence suggests upset residents' water wells were drilled too deeply into a shallow gas formation called the Strawn.

However, the Texas Railroad Commission has re-opened the case and plans to conduct its own air and water tests soon.

E-mail bshipp@wfaa.com

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- Records show drilling operation violated law while water wells contaminated
- Welcome to his nightmare: Flaming well water

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Welcome to his nightmare: Flaming well water

NEWS 8 EXCLUSIVE

PARKER COUNTY — Parker County homeowner Steve Lipsky, accused of conspiring against a powerful gas exploration company, is speaking out.

A judge ruled last year that Lipsky misled the public by trying to fool the public into believing his well water could catch on fire. (Disk file 5)

Now that homeowner wants the public to hear his story and witness his nightmare for themselves.

It all started with a video clip posted on YouTube. Grainy images from a home video recorder showed Lipsky holding a garden hose, hooked up to his water well, proving a point. (Disk file 6)

The aquifer beneath his house was so polluted with methane, he could light emissions from the well on fire.

The video went viral.

Administrators with the Environmental Protection Agency caught wind and stepped in, tested the well, and blamed a gas drilling company — Range Resources — for pollution.

Lipsky sued Range Resources, but a local judge tossed out the case, calling the video "deceptive." (Disk file 7)

State regulators with the Texas Railroad Commission agreed, and ruled that Range was not to blame for any methane contamination of Lipsky's well.

At that point, the EPA backed off the case and agreed to work with Range on a testing program.

That left Lipsky alone to fight a $4 million lawsuit filed by Range Resources against him. (Disk file 8)

"This has been a nightmare," he said. "I would not wish this on my worst enemy."

Having exhausted most of his resources and energy, Lipsky says he has only one weapon left — and WFAA is the first television crew to witness it.

Over and over, Lipsky demonstrated how it was possible to ignite a brilliant orange and blue plume of methane gas streaming from a pipe attached to his water well head, designed specifically to let volumes of gas in his well to escape. (Disk file 9)

What the drilling company, Range Resources, contended — and the judge agreed — was that Lipsky deliberately tried to make the public believe that his water was flammable.

But Lipsky says the garden hose in the video was only a temporary venting mechanism.

"This was where the hose was hooked up," Lipsky told WFAA as he demonstrated. "It's hooked up to the head space of the well, and that's where the hose was always hooked up, and we never said it was anything but that." (Disk file 10)

The well water — coming from a long white PVC pipe attached to the well head — is so laced with methane it can be seen actually catching on fire. (Disk file 11)

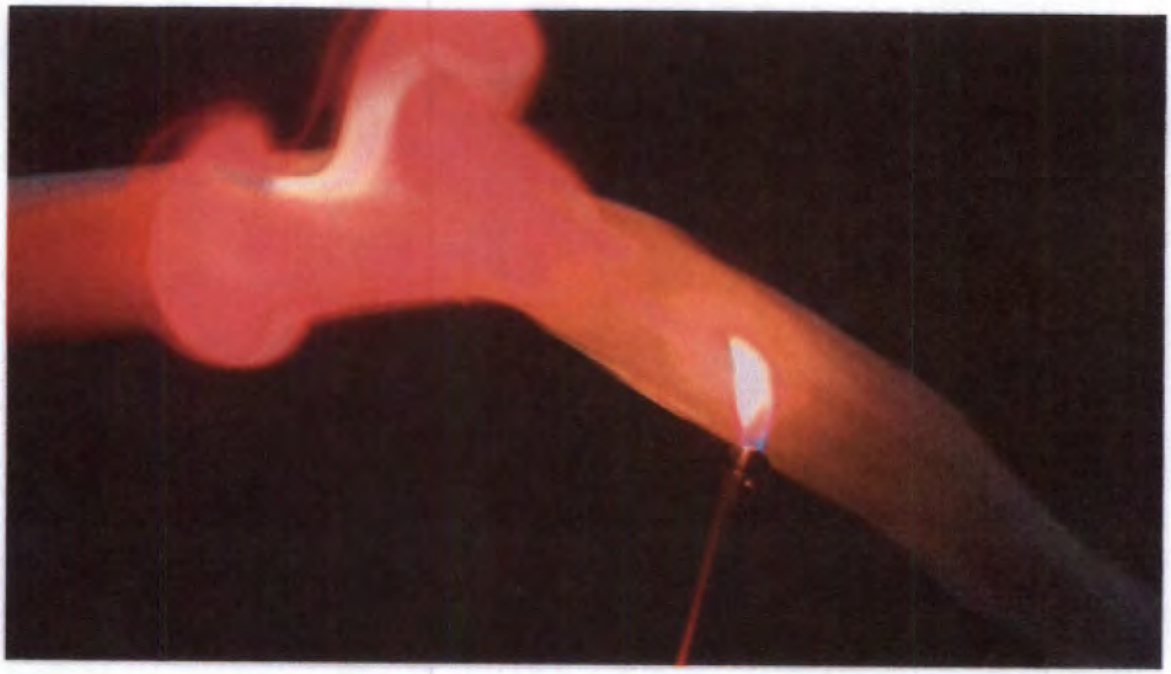
"So you can't say it's the PVC burning... you see, it's going up the water," Lipsky said. "It's actually going up. See? There it goes."

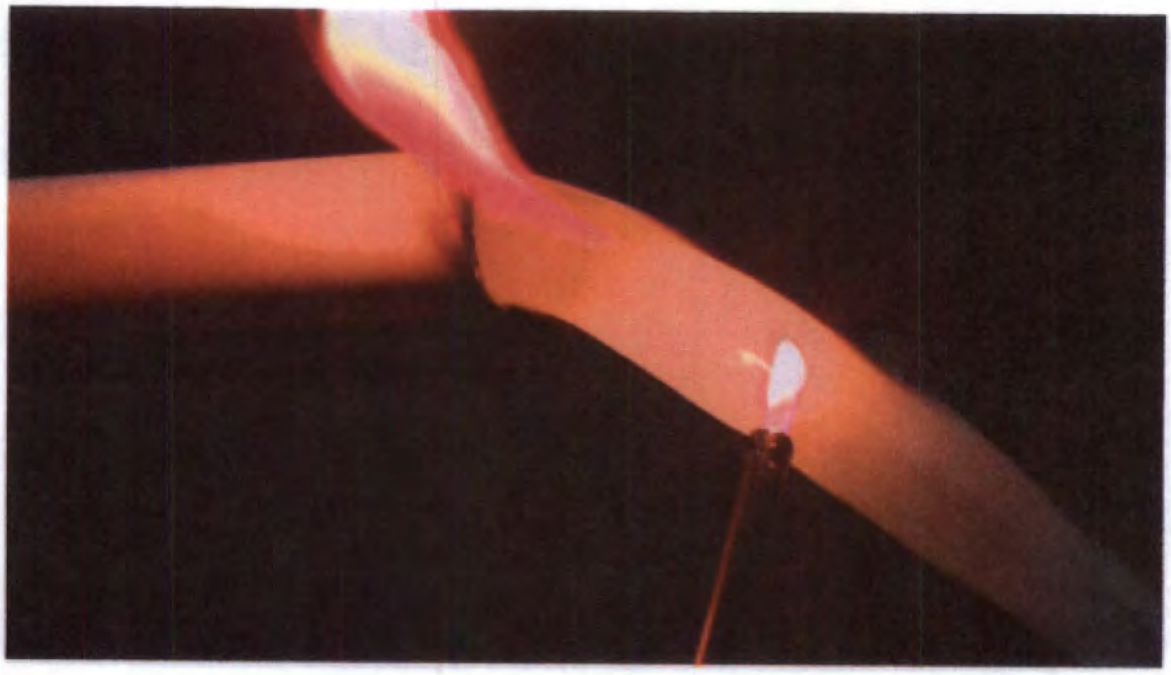
EPA tests have shown that Lipsky's well is contaminated with not only dangerous levels of methane, but also other cancer-causing toxins such as benzene and toluene. (Disk file 12)

Lipsky said investigators with the Texas Railroad Commission were the first to warn him of the dangers.

"They told me if I hadn't had it disconnected and left it going on the way it was, that it probably would have been catastrophic," Lipsky remembered. "They said my house would have blown up with all the

gas accumulating."
Lipsky said he discovered methane in his water a few months after Range Resources drilled a gas well about a half mile from his house.
Range Resources has always claimed its drilling has had no impact on the underground aquifer, and that the methane in Lipsky's well is occurs naturally.
According to the Texas Railroad Commission, water wells in the area have had natural gas in them for many years.
In the end, Lipsky said he is left with a legal bill, a contaminated well, and a mystery that may never be solved.
"Here I am getting dragged through the coals, and all I had was my water became contaminated, and I just want to know the truth," Lipsky said.
"What happened?"
E-mail bshipp@wfaa.com





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by BRETT SHIPP
WFAA
Posted on July 11, 2013 at 10:00 PM
Updated Friday, Jul 12 at 2:00 PM

http://www.wfaa.com/news/investigates/bVIDEOb-Records-show-drilling-operation-violated-state-law-while-water-wells-contaminated-215185181.html

Records show drilling operation violated law while water wells contaminated

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NEWS 8 INVESTIGATES

An old debate is being rekindled over whether gas drilling in the Barnett Shale is to blame for flames shooting out of water wells in Parker County.

News 8 has obtained records showing a drilling operation was in violation of state law at the same time area land owners say their water wells were suddenly contaminated with natural gas. (Disk file 1)

Parker County resident Steve Lipsky first ignited a debate over whether gas well drilling company Range Resources was responsible for his water well filled with enough natural gas to vent flames.

Now his neighbor, Shelly Perdue, is telling a similar story.

"I could heat my home with this," Perdue said as she showed News 8 how she can light her well water on fire.

But Perdue doesn't want to heat her home. She just wants to know why in 2009 her well water bubbled up and went bad just weeks after Range Resources drilled a gas well just a few hundred feet from her home.

Lipsky, who lives a half mile away, says his water well went bad in December 2009. He complained to the state alleging that a newly

drilled gas well was to blame.
The Texas Railroad Commission investigated and discovered a problem. Gas pressure was forming on the wellhead, indicating gas was escaping down well.
The state issued Range Resources a notice of violation. (Disk file 2)
So where could that escaped gas be coming from? In order to prevent fracked gas from migrating out of the Barnett Shale, Range Resources circulated a protective layer of cement on the outside of the production pipe from the bottom up to about 4,500 feet. They also cemented from the top of the well, down through the aquifer where Perdue and Lipsky and others get their water, to about 400 feet. That left a long stretch of open well from about 400 feet to 4,500 feet uncemented and unprotected.
Of particular concern is a shallow gas formation just beneath the aquifer called the Strawn, which was left uncemented. Is this the gas migrating up the wellhead, or worse, into the aquifer?
According to the Railroad Commission's rule 3.7, whenever gas is encountered while drilling, it "shall be confined in its original stratum" to keep it from moving up the well and contaminating an aquifer.
Another rule, 3.13, says "if any productive horizon is open to the wellbore ... the casing shall be cemented," again, to keep any gas from infiltrating the water supply. (Disk file 3)
That's called zonal isolation, said Tony Ingraffea, Cornell University engineering professor.
"This is why, by regulation, zonal isolation has to be maintained and if it is not maintained initially the well has to be worked over to achieve zonal isolation and if the well cannot be repaired to achieve zonal isolation, then the well has to be abandoned, taken out of production and plugged," he said.
Another expert, Texas A&M engineering professor Jerome Schubert, agrees that all gas zones down well must be protected.
"It should be done by the operator," he said. "It's just good operating practices".
In a review of Railroad Commission records, News 8 discovered correspondence between Range Resources and state regulators in which the driller agreed it had a problem. In response to that 2010 violation, Range proposed to fix its wellhead pressure problem by "circulating the cement to the surface." (Disk file 4)

Range added, "this work is to eliminate any chance that gas could be migrating from any zone" down below.

"It tells me that they waited over a year to actually realize they should have cemented to surface and realize that apparently they knew they had a problem," Lipsky said.

But Range Resources never added the cement down well. No repairs were ever made, and the violation for gas pressure on the wellhead was later dropped by the Railroad Commission, which went on to rule that Range was not responsible for the flames coming out of the Lipsky water well.

The state also says the well is in full compliance with the law.

Range Resources declined our interview request but issued this statement:

> "Natural gas, predominantly methane, is naturally present in the Trinity Aquifer in the area. Numerous state agencies, landowners and businesses have records of naturally occurring methane in the water prior to Range's activity."

Range produced volumes pages of documents supporting its position, including pictures of signs at a nearby water supply warning of gas in the water table. As for that wellhead pressure, Range says it's not uncommon and "does not, by itself, indicate that the mechanical integrity of a well is compromised."

As for those state rules that require hydrocarbon or gas formations be protected by cement, Range says that only applies to "commercially productive" formations, not the Strawn.

And who decides what is "commercially productive"? According to the Texas Railroad Commission, the drilling company decides.

Ingraffea says that amounts to no regulation at all.

"If that were the case, then… every well that has ever been drilled through any hydrocarbon bearing formations that are not a target of production would not have to be zonally isolated. That's absurd."

While experts debate well mechanics, some landowners remain in the dark over why their wells are still polluted and whether man or Mother Nature is to blame.

Email bshipp@wfaa.com

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Gallery

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New tests find more methane in North Texas water

By RAMIT PLUSHNICK-MASTI, Associated Press | January 17, 2014 | Updated: January 17, 2014 3:18p

Photo By LM Otero/AP

FILE - In this Nov. 26, 2012 file photo, Steve Lipsky demonstrates how his well water ignites when he puts a flame to the flowing well spigot outside his family's home in rural Parker County near Weatherford, Texas. A preliminary analysis of testing in the past year of North Texas water contaminated with explosive methane has found that the problem has spread to more residential wells, and scientists

analyzing those samples believe the new evidence more conclusively points to a nearby gas drilling operation as the source of the problem.

HOUSTON (AP) — Texas' oil and gas regulator has opened a new investigation into allegations that methane is contaminating North Texas water after residents complained that independent sampling by university researchers revealed high levels of the explosive gas in their residential wells, the state agency and scientists said.

Further analysis by another independent scientist, Geoffrey Thyne, of testing done by the U.S. Environmental Protection Agency and natural gas company Range Resources indicates the contamination is spreading to more wells and the levels are increasing in some cases. Thyne said his preliminary analysis strengthens his belief that the contamination originates at wells drilled by Fort Worth-based Range.

"The leak continues and it's spreading," Thyne told The Associated Press. "I can say, based on the current data, there are at least two other wells that show the same source ... which is the Range well."

The Texas Railroad Commission, the state agency that oversees oil and gas drilling, opened its new investigation in August, spokeswoman Ramona Nye said in an email. Additional information will be released when the investigation is complete, possibly in February, she said.

Range Resources has no evidence the gas in the water and the gas it is producing is the same, company spokesman Matt Pitzarella said in an email. The gas in the water is naturally occurring, as sometimes happens. Range's tests do not find dangerous levels of methane in the water, but the company encourages all homeowners to vent their wells.

However, Thyne and Duke University scientist Rob Jackson say they have seen dangerous levels of methane. The findings are likely different because the oil and gas industry typically uses a different sampling method, Thyne said.

Thyne's study includes isotopic analysis. This fingerprint-type analysis allowed him to review the unique chemical makeup of the gas found in the water wells and compare it to the gas Range Resources is producing and methane in a rock formation called the Strawn, which is where Range says the gas contaminating the water originated.

Thyne had already reviewed some data for the EPA after it opened its

investigation in 2010, but in recent months he did a more thorough analysis. Now, after a preliminary review, Thyne said he is more convinced the gas in at least three of the water wells originates in the Barnett shale — the rock layer from which Range Resources is extracting gas — and is identical to what is found in the company's well bore.

At first glance, it may appear that the gas in the Strawn and Barnett layers are indistinguishable "but in fact, people are able to notice subtle differences," Thyne said.

The case began in 2010 when homeowner Steve Lipsky, who lives in an upscale subdivision in Weatherford about 60 miles west of Dallas, complained to the Railroad Commission that his water was bubbling.

The agency found methane in Lipsky's water. Lipsky, afraid his family could be in danger and that the Railroad Commission was not working fast enough, contacted the EPA. Methane can be explosive if it builds up in a confined space and has an ignition source.

The EPA ruled the gas in Lipsky's water was likely coming from Range Resources' well site in a wooded area about a mile from the family's home. The company used hydraulic fracturing or "fracking" — a method of pumping millions of gallons of chemical-laced water into the ground to break up hard rock — to drill the two wells that were later sold to Legend Natural Gas.

The EPA issued a rare emergency order in late 2010 demanding that Range Resources resolve the problem and supply Lipsky's family with water. But in March 2011 the Railroad Commission ruled Range Resources was not to blame. Range agreed, and refused to comply with the EPA's order, which landed the company in court.

Range settled in March 2012 and the EPA withdrew its order. The company agreed to conduct testing for a year.

Later, at the insistence of Republican congressmen who accused the EPA of needlessly going after the gas driller, the agency conducted an internal review. That investigation sided with the EPA's initial actions, and the Office of Inspector General in a report released Dec. 24 asked for additional measures to ensure there is no risk.

The EPA has shared Range Resources' test results with the Railroad Commission but "no immediate next steps" are planned, said David Bloomgren, an EPA

spokesman in Dallas, in an email. Officials from the two agencies met this week, Nye of the Railroad Commission said.

Jackson, the Duke University professor, also specializes in isotopic analysis. He declined to share his study — funded by Duke and the National Science Foundation — until it is peer-reviewed and published, but some homeowners shared test results with the AP.

Jackson found higher levels of methane in some water wells — sometimes five to 10 times higher — than what Range Resources' tests showed. In some cases, the levels are five times higher than the 10 parts per million per liter set as a threshold limit by the U.S. Geological Survey.

"We're seeing high methane concentrations and that result alone indicates to me that EPA closing the case was premature," Jackson told the AP.

Range Resources declined to comment on Jackson's findings, saying he has not shared the results.

Elizabeth Struhs, whose property abuts Lipsky's, fears her family is in danger. Jackson's samples found 17 parts per million of methane per liter of water in her well, while Range Resources said its tests did not detect any hazardous methane level.

"We had good water before they came here and we should have good water now," Struhs said.

—

Plushnick-Masti can be followed on Twitter at https://twitter.com/RamitMastiAP .

Thu, 2014-01-09 04:00
JULIE DERMANSKY

Steve Lipsky Responds To Report Clearing EPA of Wrongdoing in Fracking Water Contamination Study

Steven Lipsky's phone was busy on the morning of Christmas Eve. The Environmental Protection Agency's Inspector General had just released its report concluding the EPA was justified in intervening to protect drinking water from hydraulic fracturing in Weatherford, Texas, despite assertions to the contrary from the oil and gas industry and Congressional Republicans.

In 2010, Mr. Lipsky alerted the agency to his contaminated well

water and the fact that he could light his water on fire. An EPA investigation determined that Range Resources' hydraulic fracturing activities caused the contamination.

Six Republican senators had quickly initiated an investigation of the report, questioning the agency's motivation and the validity of its findings. According to the Associated Press, Sen. James Inhofe (R-OK) has dismissed the Inspector General's report confirming that the EPA was justified in issuing an Emergency Order to Range Resources, the drilling company. But others, including Sharon Wilson, Gulf Regional Organizer for environmental group Earthworks, filmmaker Josh Fox and former EPA Regional Administrator Al Armendariz see the report as vindication of the EPA and Steven Lipsky.

So does Mr. Lipsky feel vindicated? No, he does not, and he says he won't until the entire story is told and the truth is completely revealed. Additionally, Lipsky wants to see an end to the $3 million defamation lawsuit filed by Range Resources against him. When I spoke to Lipsky on Christmas day, he told me the findings in the Inspector General report are just the tip of the iceberg. His neighbors are still in a perilous situation and no specific actions are being taken to provide a remedy for explosive contaminates in their water.

Steven Lipsky speaks out about the dangers facing his neighbors:

http://www.youtube.com/watch?feature=player_embedded&v=S0pmlBLLnHM

Here is an abridged version of my interview with Steven Lipsky:

Do you think the Inspector General's report was released right before Christmas in hope that it wouldn't get much media traction?

Absolutely! Come on! I don't know who is responsible for the timing, but the report was released when most reporters aren't working. By the time they get back to work, it will be old news.

People are writing that this report vindicates you, yet you have stated you don't feel vindicated yet. What more must take place for you to have a sense of vindication?

I give the Inspector General credit for this report. It is the first positive thing that has happened in the last couple of years. It's a start, but when the entire truth is told, that is when I'll be vindicated. Our family has been through a tough time, but that is not in the report.

The report cites the financial reasons the EPA rescinded its emergency order, but it doesn't bring up the role political pressure played. The EPA didn't have the money to do the right thing? Though the scientific tests they ran show Range Resources contaminated the area's water, they back away from their emergency order though circumstances have not changed? That is political pressure not financial

This report notes one of the reasons the EPA lifted the emergency order is because I found another water source for my family. So if you have $100,000 of your own money to protect yourself, you don't need the EPA's help? What kind of conclusion is that? It is political.

The EPA no longer needed to protect you after you took preemptive measures to safeguard your family and have water trucked in. What is your reaction to that?

I hope anyone whose water gets contaminated by industry has the money to do what I did. I found an alternative solution to using my water well out of necessity and common sense.

I had to find a way I could live in my house without endangering my family. I could not afford to walk away from my house. I still have mortgage payments to make.

The EPA stood back when I was sued by Range Resources for over $3 million and did nothing about it. Range Resources has accused me of libel and the EPA knows it is not true.

Just because I can afford to pay for my own water, should they step aside?

You sued Range Resources after the EPA concluded the company was responsible for contaminating your well. When the EPA later rescinded their order, what was the impact on your case?

They made me the sacrificial lamb.

I'm not a scientist, but when the EPA did isotopic testing, which is like finger printing for contaminants, and told me the guilty party was Range Resources, I sued. I trusted the proof they came up with.

When the EPA rescinded their order they never contacted me to explain. They just left me hanging. I found out through the media. Basically the whole basis of my case was that the government said Range Resources did it.

The EPA's explanation for rescinding the order now helps nothing. The way I interpret EPA's rationale is, A) We don't have the money to do the right thing; B) You have clean water now even though you paid to get it with your own money; C) We think the better thing to do with our money rather than stand up to Range Resources is to do a cooperative study with them.

It turns out the EPA's sacrifice didn't get them what they were promised. Range Resources hasn't given them the access they need to do the planned testing, as far as I know.

The report states: The EPA believes the risks to homeowners in the area have been reduced. However you have seen recent test results to the contrary from an ongoing Duke University study, and tests of your own done with the same testing equipment industry uses. The new data shows things are more dangerous than ever for your neighbors. Are you surprised this report didn't reflect the current test results you have shared with the agency?

The Inspector General didn't review the new tests. I went to the EPA a few months ago, to Lisa Feldt, and gave her documents and video of everything that show that the Texas Railroad Commission still isn't doing its job. The EPA has all the numbers from Duke and from tests done with Stacey Systems equipment which meets the industry standards that prove it is still a dangerous situation here.

So, in fact, your neighbors are not safe?

Absolutely, they remain in danger. And whenever I re-hooked up my own well to check the readings, they are higher than ever.

Your case is not the only one the EPA backed away from. They did similar things in Dimock, Pennsylvania, and Pavillion, Wyoming. Why do you think the agency is backing away from their own findings when it comes to the effects hydraulic fracturing has on private property?

Politics. And limited resources. Without naming names, so as not to cause trouble for anyone, I can tell you a person in the EPA told me it isn't about Range Resources. It is about the entire oil and gas coalition. The industry has the resources, and this is a battle the government couldn't afford to fight.

What toll has this fight taken and what you have learned from it?

This has been a nightmare. The world turned on me and it put me in a depression that almost killed me. It wasn't until I started getting the information from documents obtained via the Freedom of Information Act giving me proof of what was going on that I began to feel better.

From the documents I have obtained, there's enough information for the guilty parties to hang themselves. So I've rolled my sleeves up. Enough is enough. I could give up and die, or do the right thing.

Every day I fight back, I get more information. I have enough information to give to the public so that they can see the truth. As long as I can get the truth to the public, things will change.

It might take years for all the facts to come to the surface, but they will. You can try to hide it or bury it, but the truth will emerge. So now that's my job: to make the world know the truth, to get this all to the public.

I'm not against all hydraulic fracturing. I'm not saying to shut it all down, but there needs to be regulations to protect people and

their homes. When industry makes mistakes, they need to admit them, fix the damage, make things right, learn from them and not do it again.

People are in danger of losing their lives. The EPA needs to come out here and do the proper testing and see for themselves that these people, my neighbors, are in danger.

This is not a Steve Lipsky problem.

People were given false information: told the water is safe to drink and they are safe.

The intimidation from Range Resources is clearly working — that people haven't been told otherwise by a government agency shows this. Then releasing this report on Christmas Eve, purposely trying to keep this information down?

The gas company has the right to be arrogant because they have money, resources and political clout to do what ever they want to.

It's not enough to sit back and pray people in the government do the right thing. While they're getting their act together, I will keep fighting and get the truth out.

There is one thing in the report's conclusion that seems unclear. It says, "In its official comments and in subsequent meetings, the EPA agreed with and provided corrective actions that address our recommendations. All recommendations are resolved with corrective actions underway. No final response to this report is required." What corrective measures are those, since the emergency order was rescinded?

None that I'm aware of. I welcome them to come and stay in my guest house after I hook the well water back up to it. If there is no danger, why not?

Lipsky's house in Weatherford, Texas ©2013 Julie Dermansky

Lipsky's well water set ablaze ©2013 Julie Dermansky

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Fracking Information

Fri, 2014-01-10 07:49 — opit

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TRRC Resent
Isotope
Testing

8

Duke University and Isotech Labs both told me the testing sample the Texas Railroad Road Commission used was only good for Isotope testing and would not show my true gas concentration in my water. They both said it would show a much lower number then it really was because the gas would escape out of the bucket. The test they said that needed to be done was the IsoBag test. I told this this to the Texas Railroad Road Commission when they came to do the test. The Texas Railroad Road Commission said they did no care about the gas concentration and they do not do ambient air testing.

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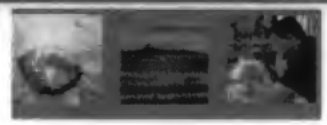

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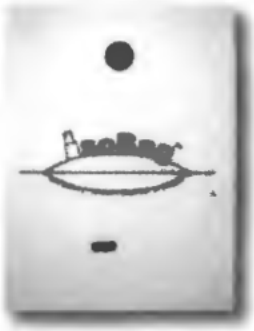
Sampling Products > Other > **Dissolved Gas Containers**

IsoJars | IsoPaks | IsoTraps | Cylinders | Gas Bags

Two containers are available for collection of dissolved gas samples. The type you choose is a matter of personal preference and the type of data needed. Both generally provide sufficient sample for chemical and isotopic analysis of the dissolved gas for identifying the source of the gas. But if the amount of gas in the water is to be quantified (ppm or cc/L), the type of container needed may depend on the amount of gas present.

The Dissolved Gas Bottles can be used to quantify the amount of gas in the water if the gas content is below saturation at atmospheric pressure (i.e., does not form bubbles). IsoBags ™ are preferable when the amount of gas in the water is above the saturation limit, since both the dissolved gas and the free gas are quantitatively collected.



IsoBags®
Using sampling techniques established by Isotech for determining the dissolved methane content of groundwater samples, the IsoBag is more durable and better suited to this purpose than other sampling containers. Each IsoBag comes with a bactericide capsule inside to prevent degradation of the sample.

Although developed for dissolved methane analysis, IsoBags may be used for some other gas sampling needs. Contact Isotech for recommendations.
Dissolved Gas Samples in IsoBags (PDF)

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Designed for collection of samples from domestic water wells, these 1-liter bottles are large enough for compositional and isotopic analysis of the dissolved gas. With the cap-mounted septum, it is not necessary to open the bottle during analysis, reducing the potential for contamination of the sample. Each bottle also contains a bactericide capsule to prevent degradation of the gas.
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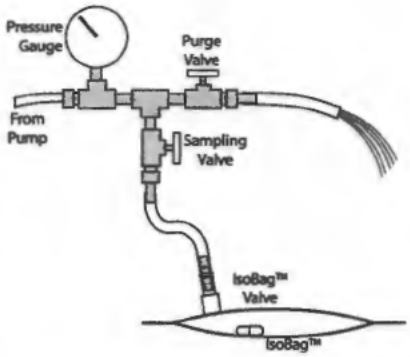
Collection of Ground Water Samples from Domestic and Municipal Water Wells for Dissolved Gas Analysis Using IsoBags®

1. **Sampling source:** Water samples should either be collected from a pressurized water system or by using a suitable water pump. When sampling from a pressurized water system, it is recommended to use an outdoor spigot or other source which bypasses any water treatment systems (i.e. water softeners, etc.). When using a pump, it should be capable of maintaining a constant pressure at or above that which exists within the aquifer. This is to ensure that gases dissolved in the water within the aquifer remain dissolved until the water is transferred into an IsoBag®. If using a pulsating pump such as a bladder pump, please contact Isotech for additional recommendations.

2. **Sampling Mechanism:** *After purging the well*, a mechanism consisting of a pressure gauge in line with two valves should be attached to the spigot or pump output (see figure). The ***purge valve*** (see figure) allows water to be pumped through the system to purge both the well and the tubing. The ***sampling valve*** (which should point downward), provides a point whereby a sample split can be slowly "bled" off from that water which is being continuously purged out of the system via the ***purge valve***. Sampling in this manner allows for collection of a sample over a longer period of time, and as such should provide a sample that is more representative of the water source, in essence creating an "averaging effect" during collection.



3. **IsoBags:** The gas bags provided have been evacuated in advance. A capsule filled with bactericide has also been inserted.

4. **Collection of samples:** Slowly open the ***purge valve*** to purge any gas or air from the tubing. The flow rate should be controlled so as to allow a reasonable flow, while also maintaining a pressure close to the maximum pressure of the water system or pump. When the line has been adequately purged and a steady state situation is achieved, open the sampling valve slightly to purge the air from it. Then, with the water still running at a low rate, connect the fitting to the valve on the IsoBag and proceed to fill the bag (note: the slower the filling rate, the greater the "averaging effect"). The bag should be filled with approximately 500 cc of water (i.e. to a thickness of about 1 inch). When sufficient sample has been collected, close the sampling valve and quickly disconnect the fitting from the IsoBag. The water flow can now be turned off and the hose disconnected.

5. **Submission of samples.** After recording the sample identification on the attached label, the bag should be placed in its protective box and packed **laying flat.** Complete a Chain-of-Custody/Analysis Request form and include it with the sample(s). **If possible, samples should be shipped the same day collected, via an overnight delivery service. Client MUST inform Isotech of shipment prior to arrival.** Please note Isotech's receiving hours of **Monday thru Friday** 8:00 am to 4:30 p.m.

   Ship samples to:

   Isotech Laboratories, Inc.
   1308 Parkland Court
   Champaign, IL 61821

These instructions have been provided to simplify the collection of samples for dissolved gas analysis. Although we try to foresee and avoid problems in the field, it is never possible to predict every situation. If you encounter any difficulties, or if any additions or changes in these instructions would be beneficial, please let us know.

Isotech Laboratories, Inc. makes no warranty as to the applicability and/or safety of the procedures described herein.

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Collection of Ground Water Samples from Domestic and Municipal Water Wells for Dissolved Gas Analysis Using Gas Bottles

This is the test the TRRC cited it is any good for Isotopes.

These instructions are based on sampling protocol created by Anthony Gorody, adopted by the Colorado Oil and Gas Conservation Commission, and are reproduced here with their permission.

The basic technique is to fill a white 5 gallon bucket with source water and then fill the 1 liter sample collection bottle fully immersed in the bucket.

When sampling from a pressurized water system, it is recommended to use an outdoor spigot or other source which bypasses any water treatment systems (i.e. water softeners, etc.).

To collect a sample for isotopic and chromatographic analysis from water that is not effervescent, using 1L bottle with septum cap:

After purging the well, fill the 5 gallon bucket with water. Attach a nozzle and 12" length of ¼ inch diameter tubing to the end of the 5/8 inch hose connected to a faucet. Make sure that the flow rates through the tubing are low. Remove the cap of the 1 L bottle and fill it with water. Once the bottle filled, immerse it in the 5 gallon bucket full of water, keeping the tubing at the bottom of the bottle. Place the bottle at the bottom of the bucket under a head of water, and keep water flowing at a low rate until another 2 volumes of water have been displaced from the bottle. Then slowly lift the tubing out of the bottle and immediately cap it under water. No air should be allowed into the 1 L bottle. When finished, tape the cap to the bottle around the neck, pack the bottle upside down in ice, and ship it overnight. If using dissolved gas containers supplied by Isotech, ice is not necessary, as we have included a bactericide capsule which will eliminate bacterial degradation of the sample.

To collect a headspace gas sample from an effervescent water well:

Fill the bottle with water. Submerge the bottle into the 5 gallon bucket filled with well water and invert it. Insert the ¼ inch tubing into the bottle, increase the flow rate to 2-3 gpm and allow the bubbling gases to displace water in a headspace until 1/4 to 1/2 of the water in the bottle has been displaced. Seal the container under water with the septum and screw cap, tighten it securely. When finished, tape the cap to the bottle around the neck, pack the bottle upside down in ice, and ship it overnight.

Please note Isotech's receiving hours of **Monday thru Friday** 8:00 am to 4:30 pm.
Ship samples to:

Isotech Laboratories, Inc.
1308 Parkland Court
Champaign, IL 61821

These instructions have been provided to simplify the collection of samples for dissolved gas analysis. Although we try to foresee and avoid problems in the field, it is never possible to predict every situation. If you encounter any difficulties, or if any additions or changes in these instructions would be beneficial, please let us know. Isotech Laboratories, Inc. makes no warrantee as to the applicability and/or safety of the procedures described herein.

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

January 24, 2014

Unidentified Operator

STATUS REPORT

Lipsky, Steve Complaint No. 7B-10444
Lipsky Property
Lipsky Water Wells
Parker County, Texas
Job No. 13-9126

On August 7, 2013, Railroad Commission of Texas District 7B Office was contacted by Steve Lipsky concerning natural gas in his water wells. Mr. Lipsky's initial concern was the presence of methane in a newly drilled water well and an apparent increase in methane in the older water well. An initial inspection of the property and water wells was performed on August 9, 2013.

Terracon, under the supervision of RRC staff, sampled your water well on September 27, 2013. Laboratory reports with analytical results are enclosed. Commission staff is currently evaluating the data. Commission staff will share its findings following completion of the investigation. In the meantime, based on the occurrence of methane in your water well, RRC staff suggests that you properly ventilate and aerate your water system.

Please direct any questions with regard to this complaint to Site Remediation in Austin at (512) 463-6765.

Sincerely,

Gene Ortiz
Engineering Specialist

GO/mm

☑ Assistant District Director
☐ District Director

Wrong test for Total Gas

cc: Field Operations, RRC, Austin

Steve Lipsky
(b) (6)

Peter Pope
RRC Austin – Site Remediation

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-36658-1
Client Project/Site: 94137559 / Lipsky Property

For:
Terracon Consulting Eng & Scientists
8901 Carpenter Freeway
Suite 100
Dallas, Texas 75247

Attn: Mr. David Majesko

Jennifer Gambill

Authorized for release by:
10/16/2013 10:28:15 AM

Jennifer Gambill, Project Manager I
(615)726-0177
jennifer.gambill@testamericainc.com

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Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: 94137559 / Lipsky Property

TestAmerica Job ID: 490-36658-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-36658-1	WWW-08A-LIP-092713	Water	09/27/13 14:10	10/01/13 08:20
490-36658-2	WWW-08B-LIP-092713	Water	09/27/13 15:50	10/01/13 08:20

Job ID: 490-36658-1

Laboratory: TestAmerica Nashville

Narrative

CASE NARRATIVE

Client: Terracon Consulting Eng & Scientists

Project: 94137559 / Lipsky Property

Report Number: 490-36658-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Nashville attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 10/01/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.1 C.

DISSOLVED GASES

Samples WWW-08A-LIP-092713 (490-36658-1) and WWW-08B-LIP-092713 (490-36658-2) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 10/10/2013.

Methane failed the recovery criteria low for the MSD of sample 490-36654-1 in batch 490-113623.

Sample WWW-08A-LIP-092713 (490-36658-1) required a 20x dilution for Ethane and Methane prior to analysis. The reporting limits have been adjusted accordingly.

Sample WWW-08B-LIP-092713 (490-36658-2) required a 10x dilution for Methane prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the dissolved gases analysis.

Job ID: 490-36658-1 (Continued)

Laboratory: TestAmerica Nashville (Continued)

All other quality control parameters were within the acceptance limits.

Qualifiers

GC VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Terracon Consulting Eng & Scientists
Project/Site: 94137559 / Lipsky Property

TestAmerica Job ID: 490-36658-1

Client Sample ID: WWW-08A-LIP-092713
Date Collected: 09/27/13 14:10
Date Received: 10/01/13 09:20

Lab Sample ID: 490-36658-1
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetylene	ND		0.00500	0.00340	mg/L			10/10/13 16:40	1
Butane	0.138		0.00500	0.00250	mg/L			10/10/13 16:40	1
Ethane	1.86		0.100	0.0500	mg/L			10/10/13 16:43	20
Ethene	ND		0.00500	0.00250	mg/L			10/10/13 16:40	1
Methane	8.60		0.100	0.0500	mg/L			10/10/13 16:43	20
Propane	1.28		0.00500	0.00250	mg/L			10/10/13 16:40	1

Client: Terracon Consulting Eng & Scientists
Project/Site: 94137559 / Lipsky Property

TestAmerica Job ID: 490-36658-1

Client Sample ID: WWW-08B-LIP-092713
Date Collected: 09/27/13 15:50
Date Received: 10/01/13 09:20

Lab Sample ID: 490-36658-2
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetylene	ND		0.00500	0.00340	mg/L			10/10/13 16:47	1
Butane	ND		0.00500	0.00250	mg/L			10/10/13 16:47	1
Ethane	0.449		0.00500	0.00250	mg/L			10/10/13 16:47	1
Ethene	ND		0.00500	0.00250	mg/L			10/10/13 16:47	1
Methane	2.98		0.0500	0.0250	mg/L			10/10/13 16:51	10
Propane	0.0912		0.00500	0.00250	mg/L			10/10/13 16:47	1

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 490-113623/5
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetylene	ND		0.00500	0.00340	mg/L			10/10/13 15:56	1
Butane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Ethane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Ethene	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Methane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Propane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1

Lab Sample ID: LCS 490-113623/3
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetylene	0.450	0.4149		mg/L		92	80 - 120
Butane	0.992	0.9984		mg/L		101	80 - 120
Ethane	0.513	0.4445		mg/L		87	80 - 120
Ethene	0.479	0.3958		mg/L		83	80 - 120
Methane	0.273	0.2534		mg/L		93	80 - 120
Propane	0.763	0.7409		mg/L		97	80 - 120

Lab Sample ID: LCSD 490-113623/4
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetylene	0.450	0.3933		mg/L		87	80 - 120	5	33
Butane	0.992	0.9937		mg/L		100	80 - 120	0	33
Ethane	0.513	0.4336		mg/L		85	80 - 120	2	30
Ethene	0.479	0.3941		mg/L		82	80 - 120	0	29
Methane	0.273	0.2488		mg/L		91	80 - 120	2	33
Propane	0.763	0.7326		mg/L		96	80 - 120	1	33

Lab Sample ID: 490-36654-B-1 MS
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetylene	ND		0.450	0.3748		mg/L		83	70 - 130
Butane	0.0480		0.992	0.9942		mg/L		95	70 - 130
Ethane	1.46		0.513	1.876	E	mg/L		81	71 - 120
Ethene	ND		0.479	0.3704		mg/L		77	71 - 120
Methane	3.59		0.273	3.752	E 4	mg/L		58	46 - 142
Propane	0.579		0.763	1.264		mg/L		90	70 - 130

Lab Sample ID: 490-36654-B-1 MSD
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetylene	ND		0.450	0.3541		mg/L		79	70 - 130	6	30

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 490-36654-B-1 MSD
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Butane	0.0480		0.992	0.9929		mg/L		95	70 - 130	0	30
Ethane	1.46		0.513	1.880	E	mg/L		81	71 - 120	0	30
Ethene	ND		0.479	0.3697		mg/L		77	71 - 120	0	30
Methane	3.59		0.273	3.603	E 4	mg/L		3	46 - 142	4	30
Propane	0.579		0.763	1.271		mg/L		91	70 - 130	1	30

GC VOA

Analysis Batch: 113623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-36654-B-1 MS	Matrix Spike	Total/NA	Water	RSK-175	
490-36654-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	RSK-175	
490-36658-1	WWW-08A-LIP-092713	Total/NA	Water	RSK-175	
490-36658-1	WWW-08A-LIP-092713	Total/NA	Water	RSK-175	
490-36658-2	WWW-08B-LIP-092713	Total/NA	Water	RSK-175	
490-36658-2	WWW-08B-LIP-092713	Total/NA	Water	RSK-175	
LCS 490-113623/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 490-113623/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 490-113623/5	Method Blank	Total/NA	Water	RSK-175	

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: 94137559 / Lipsky Property

TestAmerica Job ID: 490-36658-1

Client Sample ID: WWW-08A-LIP-092713 — **Lab Sample ID: 490-36658-1**
Date Collected: 09/27/13 14:10 — Matrix: Water
Date Received: 10/01/13 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	113623	10/10/13 16:40	MGH	TAL NSH
Total/NA	Analysis	RSK-175		20	113623	10/10/13 16:43	MGH	TAL NSH

Client Sample ID: WWW-08B-LIP-092713 — **Lab Sample ID: 490-36658-2**
Date Collected: 09/27/13 15:50 — Matrix: Water
Date Received: 10/01/13 08:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	113623	10/10/13 16:47	MGH	TAL NSH
Total/NA	Analysis	RSK-175		10	113623	10/10/13 16:51	MGH	TAL NSH

Laboratory References:
TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL NSH

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: 94137559 / Lipsky Property

TestAmerica Job ID: 490-36658-1

Laboratory: TestAmerica Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6	T104704077-09-TX	08-31-14

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Acetylene

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

490-36658 Chain of Custody

COOLER RECEIPT FORM

Cooler Received/Opened On 10/1/2013 @ 0820

1. Tracking # 2731 (last 4 digits, FedEx)

Courier: Fedex IR Gun ID 18290455

2. Temperature of rep. sample or temp blank when opened: 3.1 *Degrees Celsius*

3. If item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) ELA

7. Were custody seals on containers: YES NO and intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #

I certify that I unloaded the cooler and answered questions 7-14 (intial)

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial)

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial)

I certify that I attached a label with the unique LIMS number to each container (intial)

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#

12

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 11/28/12

10/16/2013

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: DALLAS

Project Manager: MAX MAJESKO

Laboratory: TEST AMERICA

Address: NASHVILLE, TN

Contact: JENNIFER GAMBLIN

Phone:

PO/SO #: 94137559

Sampler's Name: MAX MAJESKO

Sampler's Signature:

Proj. No.: 94137559

Project Name: LISKY PROPERTY PARKER COUNTY, TX

Lab use only
Due Date:

Temp. of coolers when received (C°): 1 | 2 | 3 | 4 | 5

Page 1 of 1

Loc: 490
36658

ANALYSIS REQUESTED

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No/Type of Containers: VOA	AG 1 Lt.	250 ml	P/O	RSK-175 (methane, ethane, ethene, propane, n-butane, acetylene)			Lab Sample ID (Lab Use Only)
W	9/27/13	1410		X	WW-08A-LSP-092713	—	—	6				X	X	X	01
W	9/27/13	1550		X	WW-08B-LSP-092713	—	—	6				X	X	X	2

Turn around time: ☑ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush

Relinquished by (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	9/30/13	1325		9/30/13	1325
	9/30/13	1700		10/01/13	0820

NOTES:

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; AG - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other

Houston Office: 11555 Clay Road, Suite 100, Houston, Texas 77043, (713) 690-8989 Fax (713) 690-8787
Dallas Office: 8901 Carpenter Freeway, Suite 100, Dallas, Texas 75247, (214) 630-1010 Fax (214) 630-7070
Fort Worth Office: 2601 Gravel Drive, Fort Worth, Texas 76118, (817) 268-8600 (817) 268-8602
Austin Office: 5307 Industrial Oaks Blvd. # 160, Austin, Texas 78735, (512) 442-1122 Fax (512) 442-1181
Midland Office: 24 Smith Rd., # 261, Midland, Texas 79705, (432) 684-9600 Fax (432) 6

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 490-36658-1

Login Number: 36658
List Number: 1
Creator: Gambill, Shane

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 385145 Job #: 23063 IS-67344 Co. Job#:
Sample Name: WWG-08A-LIP-092713 (Old Well) Co. Lab#:
Company: Terracon Consultants, Inc.
Date Sampled: 9/27/2013
Container: Cali-5-Bond Bag
Field/Site Name: Lipsky Property
Location: Parker County, Texas
Formation/Depth:
Sampling Point:
Date Received: 10/01/2013 Date Reported: 11/11/2013

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Helium	0.122			
Hydrogen	nd			
Argon	0.0642			
Oxygen	0.33			
Nitrogen	6.41			
Carbon Dioxide	0.058			
Methane	82.80	-46.89	-193.6	
Ethane	6.69	-34.07		
Ethylene	nd			
Propane	2.37	-30.22		
Propylene	nd			
Iso-butane	0.344			
N-butane	0.510			
Iso-pentane	0.122			
N-pentane	0.0877			
Hexanes +	0.0885			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1059
Specific gravity, calculated: 0.657

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 385146 Job #: 23063 IS-67344 Co. Job#:
Sample Name: WWG-08B-LIP-092713 (New Well) Co. Lab#:
Company: Terracon Consultants, Inc.
Date Sampled: 9/27/2013
Container: Cali-5-Bond Bag
Field/Site Name: Lipsky Property
Location: Parker County, Texas
Formation/Depth:
Sampling Point:
Date Received: 10/01/2013 Date Reported: 11/11/2013

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Helium	nd			
Hydrogen	nd			
Argon	0.880			
Oxygen	20.27			
Nitrogen	78.78			
Carbon Dioxide	0.050			
Methane	0.0202			
Ethane	0.0017			
Ethylene	nd			
Propane	0.0006			
Propylene	nd			
Iso-butane	0.0001			
N-butane	0.0002			
Iso-pentane	nd			
N-pentane	0.0001			
Hexanes +	0.0007			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 0
Specific gravity, calculated: 0.999

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 385147 Job #: 23063 IS-67344 Co. Job#:
Sample Name: WWW-08A-LIP-092713 (Old Well) Co. Lab#:
Company: Terracon Consultants, Inc.
Date Sampled: 9/27/2013
Container: Dissolved Gas Bottle
Field/Site Name: Lipsky Property
Location: Parker County, Texas
Formation/Depth:
Sampling Point:
Date Received: 10/01/2013 Date Reported: 11/11/2013

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Helium	0.0252			
Hydrogen	nd			
Argon	0.0563			
Oxygen	0.44			
Nitrogen	2.60			
Carbon Dioxide	0.079			
Methane	84.95	-46.63	-187.9	
Ethane	8.37	-34.15		
Ethylene	0.0001			
Propane	2.50	-30.36		
Propylene	0.0004			
Iso-butane	0.232			
N-butane	0.476			
Iso-pentane	0.0823			
N-pentane	0.0730			
Hexanes +	0.115			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 1109
Specific gravity, calculated: 0.649

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 385148 Job #: 23063 IS-67344 Co. Job#:
Sample Name: WWW-08B-LIP-092713 (New Well) Co. Lab#:
Company: Terracon Consultants, Inc.
Date Sampled: 9/27/2013
Container: Dissolved Gas Bottle
Field/Site Name: Lipsky Property
Location: Parker County, Texas
Formation/Depth:
Sampling Point:
Date Received: 10/01/2013 Date Reported: 11/11/2013

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Helium	na			
Hydrogen	nd			
Argon	1.05			
Oxygen	nd			
Nitrogen	60.94			
Carbon Dioxide	0.16			
Methane	35.16	-46.51	-174.2	
Ethane	2.35	-33.34		
Ethylene	nd			
Propane	0.275	-27.0		
Propylene	nd			
Iso-butane	0.0097			
N-butane	0.0308			
Iso-pentane	0.0025			
N-pentane	0.0069			
Hexanes +	0.0160			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 407
Specific gravity, calculated: 0.831

Remarks: ** Propane isotopes obtained online via GC-C-IRMS

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC
www.isotechlabs.com

Isotech Gas Data

Job 23063
CoreTrac IS-67344

nd = not detected, na = not analyzed
* Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace.
* Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Samples without He dilution factor had sufficient headspace to be extracted directly
** Isotopes obtained online via GC-C-IRMS

Isotech Lab No.	Sample Name	Sample Date	Sample Time	Field Name	Location	GC Date	He %	H_2 %	Ar %	O_2 %	CO_2 %	N_2 %	CO %	C_1 %	C_2 %	C_2H_4 %	C_3 %	C_3H_6 %	iC_4 %	nC_4 %	iC_5 %	nC_5 %	C_6+ %	SIB Date	$\delta^{13}C_1$ ‰	δDC_1 ‰	$\delta^{13}C_2$ ‰	$\delta^{13}C_3$ ‰	Specific Gravity	BTU	Helium dilution factor *
385145	WWG-08A-LIP-092713 (Old Well)	9/27/2013	13:12	Lipsky Property	Parker County, Texas	11/7/2013	0.122	nd	0.0642	0.33	0.058	6.41	nd	82.80	6.69	nd	2.37	nd	0.344	0.510	0.122	0.0677	0.0885	11/7/2013	-46.89	-198.6	-34.07	-30.22	0.657	1059	
385146	WWG-08B-LIP-092713 (New Well)	9/27/2013	15:00	Lipsky Property	Parker County, Texas	11/7/2013	nd	nd	0.880	20.27	0.050	78.78	nd	0.0202	0.0017	nd	0.0006	nd	0.0001	0.0002	nd	0.0001	0.0007						0.999	0	
385147	WWW-08A-LIP-092713 (Old Well)	9/27/2013	14:30	Lipsky Property	Parker County, Texas	11/7/2013	0.0252	nd	0.0563	0.44	0.079	2.60	nd	84.95	8.37	0.0001	2.50	0.0004	0.232	0.476	0.0823	0.0730	0.115	11/7/2013	-48.63	-187.9	-34.15	-30.36	0.649	1109	
385148	WWW-08B-LIP-092713 (New Well)	9/27/2013	16:15	Lipsky Property	Parker County, Texas	11/7/2013	na	nd	1.05	nd	0.16	60.94	nd	35.16	2.35	nd	0.275	nd	0.0097	0.0308	0.0025	0.0069	0.0160	11/8/2013	-46.51	-174.2	-33.34	27.0	0.831	407	0.68

nd = not detected, na = not analyzed

Send Data and Invoice to

Name: MAX MAJESKO
Company: TERRACON
Address: 8901 CARPENTER FWY #100
DALLAS, TEXAS 75247
Phone: 214-630-1010
Fax: 214-630-7070
Email: dmmajesko@terracon.com

Project: LIPSKY PROPERTY
Location: PARKER COUNTY, TEXAS
Sampled by: MAX MAJESKO

Isotech Laboratories, Inc.
1308 Parkland Court
Champaign, IL 61821
Phone: 217-398-3490
Fax: 217-398-3493
www.isotechlabs.com
mail@isotechlabs.com

Sample Description

Container Number	Sample Identification	Date Sampled	Analyses Requested: Compositional Analyses (N_2, CO, CO_2, O_2, Ar, H_2, He, CH_4, C_2H_6, C_3H_8, i-butane, n-C_4H_{10}, i-C_5H_{12}, n-C_5H_{12}, C_6+)	Isotopic analyses ($\delta^{13}C$ and δD methane)	$^{13}C/^{12}C$ ($\delta^{13}C$ ethane, propane)	Comments
1	WWG-08A-LIP-072713	7/27/13	X	X	X	13-12 CANS RIGHT GAS
1	WWG-08B-LIP-072713	7/27/13	X	X	X	15-20 CANS RIGHT GAS

Chain-of-Custody Record

	Signature	Company	Date	Time
Relinquished by		TERRACON	7/30/13	1310
Received by	Jose Cabello	Isotech	7/31/13	0825
Relinquished by				
Received by				
Relinquished by				
Received by				

Send Data and Invoice to

Name: MAX MAJESKO
Company: TERRACON
Address: 8901 CARPENTER FWY #100
DALLAS, TEXAS 75247
Phone: 214-630-1010
Fax: 214-630-7070
Email: dmajesko@terracon.com

Project: LEPSKY PROPERTY
Location: PARKER COUNTY, TEXAS
Sampled by: MAX MAJESKO

Isotech Laboratories, Inc.
1308 Parkland Court
Champaign, IL 61821
Phone: 217-398-3490
Fax: 217-398-3493
www.isotechlabs.com
mail@isotechlabs.com

Sample Description

Container Number	Sample Identification	Date Sampled	Analyses Requested: Compositional Analysis	Analyses Requested: $\delta^{13}C$ ethane	Analyses Requested: $\delta^{13}C$ propane	Comments
1	WWW-08A-LEP-092713	9/27/13	X	X	X	14:30 1L BOTTLE (PLASTIC)
1	WWW-08B-LEP-092713	9/27/13	X	X	X	16:15 1L BOTTLE (PLASTIC)

Chain-of-Custody Record

	Signature	Company	Date	Time
Relinquished by		TERRACON	9/30/13	1325
Received by	Peter Cabelo	Isotech	10/1/13	0825
Relinquished by				
Received by				
Relinquished by				
Received by				

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

January 24, 2014

Unidentified Operator

STATUS REPORT

Perdue, Michelle Complaint No. 7B-10443
Perdue Property
Perude Water Well
Parker County, Texas
Job No. 13-9119

On August 7, 2013, Railroad Commission of Texas District 7B Office was contacted by Michelle Perdue concerning natural gas in her water well. Ms. Perdue's initial concern was an apparent increase in methane in the water well. An initial inspection of the property and water well was performed on August 7, 2013.

Terracon, under the supervision of RRC staff, sampled your water well on September 27, 2013. Laboratory reports with analytical results are enclosed. Commission staff is currently evaluating the data. Commission staff will share its findings following completion of the investigation. In the meantime, based on the occurrence of methane in your water well, RRC staff suggests that you properly ventilate and aerate your water system.

Please direct any questions with regard to this complaint to Site Remediation in Austin at (512) 463-6765.

Sincerely,

Gene Ortiz
Engineering Specialist

GO/mm

☑ Assistant District Director
☐ District Director

cc: Field Operations, RRC, Austin

Michelle Perdue
(b) (6)

Peter Pope
RRC Austin – Site Remediation

Wrong test for total Gas

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-36655-1
Client Project/Site: 94137559 / Purdue Property

For:
Terracon Consulting Eng & Scientists
8901 Carpenter Freeway
Suite 100
Dallas, Texas 75247

Attn: Mr. David Majesko

Jennifer Gambill

Authorized for release by:
10/16/2013 10:20:19 AM

Jennifer Gambill, Project Manager I
(615)726-0177
jennifer.gambill@testamericainc.com

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Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: 94137559 / Purdue Property

TestAmerica Job ID: 490-36655-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-36655-1	WWW-02-PKR-092713	Water	09/27/13 11:26	10/01/13 08:20

CASE NARRATIVE

Client: Terracon Consulting Eng & Scientists

Project: 94137559 / Purdue Property

Report Number: 490-36655-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Nashville attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

Test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT
The samples were received on 10/01/2013; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.1 C.

DISSOLVED GASES
Sample WWW-02-PKR-092713 (490-36655-1) was analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 10/10/2013.

Methane failed the recovery criteria low for the MSD of sample 490-36654-1 in batch 490-113623.

Sample WWW-02-PKR-092713 (490-36655-1) required a 20x dilution for Ethane and a 80x dilution for Methane prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the dissolved gases analysis.

All other quality control parameters were within the acceptance limits.

Qualifiers

GC VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
[illegible]	Relative error ratio
[illegible]	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Terracon Consulting Eng & Scientists
Project/Site: 94137559 / Purdue Property

TestAmerica Job ID: 490-36655-1

Client Sample ID: WWW-02-PKR-092713
Date Collected: 09/27/13 11:26
Date Received: 10/01/13 08:20

Lab Sample ID: 490-36655-1
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetylene	ND		0.00500	0.00340	mg/L			10/10/13 16:29	1
Butane	0.0144		0.00500	0.00250	mg/L			10/10/13 16:29	1
Ethane	3.04		0.100	0.0500	mg/L			10/10/13 16:33	20
Ethene	ND		0.00500	0.00250	mg/L			10/10/13 16:29	1
Methane	21.9		0.400	0.200	mg/L			10/10/13 16:36	80
Propane	0.145		0.00500	0.00250	mg/L			10/10/13 16:29	1

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 490-113623/5
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetylene	ND		0.00500	0.00340	mg/L			10/10/13 15:56	1
Butane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Ethane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Ethene	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Methane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1
Propane	ND		0.00500	0.00250	mg/L			10/10/13 15:56	1

Lab Sample ID: LCS 490-113623/3
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetylene	0.460	0.4149		mg/L		92	80 - 120
Butane	0.992	0.9984		mg/L		101	80 - 120
Ethane	0.513	0.4445		mg/L		87	80 - 120
Ethene	0.479	0.3958		mg/L		83	80 - 120
Methane	0.273	0.2534		mg/L		93	80 - 120
Propane	0.763	0.7409		mg/L		97	80 - 120

Lab Sample ID: LCSD 490-113623/4
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetylene	0.450	0.3933		mg/L		87	80 - 120	5	33
Butane	0.992	0.9937		mg/L		100	80 - 120	0	33
Ethane	0.513	0.4338		mg/L		85	80 - 120	2	30
Ethene	0.479	0.3941		mg/L		82	80 - 120	0	29
Methane	0.273	0.2488		mg/L		91	80 - 120	2	33
Propane	0.763	0.7326		mg/L		96	80 - 120	1	33

Lab Sample ID: 490-36654-B-1 MS
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetylene	ND		0.450	0.3748		mg/L		83	70 - 130
Butane	0.0480		0.992	0.9942		mg/L		95	70 - 130
Ethane	1.46		0.513	1.876	E	mg/L		81	71 - 120
Ethene	ND		0.479	0.3704		mg/L		77	71 - 120
Methane	3.59		0.273	3.752	E 4	mg/L		58	46 - 142
Propane	0.579		0.763	1.264		mg/L		90	70 - 130

Lab Sample ID: 490-36654-B-1 MSD
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetylene	ND		0.450	0.3541		mg/L		79	70 - 130	6	30

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: 490-36654-B-1 MSD
Matrix: Water
Analysis Batch: 113623

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Butane	0.0480		0.992	0.9929		mg/L		95	70 - 130	0	30
Ethane	1.46		0.513	1.880	E	mg/L		81	71 - 120	0	30
Ethene	ND		0.479	0.3697		mg/L		77	71 - 120	0	30
Methane	3.59		0.273	3.603	E 4	mg/L		3	46 - 142	4	30
Propane	0.579		0.763	1.271		mg/L		91	70 - 130	1	30

GC VOA

Analysis Batch: 113623

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-36654-B-1 MS	Matrix Spike	Total/NA	Water	RSK-175	
490-36654-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	RSK-175	
490-36655-1	WWW-02-PKR-092713	Total/NA	Water	RSK-175	
490-36655-1	WWW-02-PKR-092713	Total/NA	Water	RSK-175	
490-36655-1	WWW-02-PKR-092713	Total/NA	Water	RSK-175	
LCS 490-113623/3	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 490-113623/4	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 490-113623/5	Method Blank	Total/NA	Water	RSK-175	

Client Sample ID: WWW-02-PKR-092713
Date Collected: 09/27/13 11:26
Date Received: 10/01/13 08:30

Lab Sample ID: 490-36655-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	113623	10/10/13 16:29	MGH	TAL NSH
Total/NA	Analysis	RSK-175		20	113623	10/10/13 16:33	MGH	TAL NSH
Total/NA	Analysis	RSK-175		80	113623	10/10/13 16:36	MGH	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL NSH

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: 94137559 / Purdue Property

TestAmerica Job ID: 490-36655-1

Laboratory: TestAmerica Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6	T104704077-09-TX	08-31-14

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Acetylene

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIPT FORM

490-36655 Chain of Custody

Cooler Received/Opened On 10/1/2013 @ 0820

1. Tracking # 2737 (last 4 digits, FedEx)

Courier: Fedex IR Gun ID 18290455

2. Temperature of rep. sample or temp blank when opened: 3.1 *Degrees Celsius*

3. If item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

If yes, how many and where: 1 front

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (initial) ELA

7. Were custody seals on containers: YES NO and intact YES...NO...NA

Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry Ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

b. Was there any observable headspace present in any VOA vial? YES...NO...NA 8) 8 vials have headspace

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (initial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) _____

I certify that I attached a label with the unique LIMS number to each container (initial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

12

BIS = Broken in shipment
Cooler Receipt Form.doc

LF-1
End of Form

Revised 11/28/12
10/16/2013

12

ENVIRONMENTAL, GEOTECHNICAL AND CONSTRUCTION MATERIALS SERVICES

CHAIN OF CUSTODY RECORD

Terracon
Consulting Engineers & Scientists

Office Location: DALLAS
Project Manager: MAX MAJESKI

Laboratory: TEST AMERICA
Address: NASHVILLE, TN
Contact: JENNIFER GAMBILL
Phone:
PO/SO #: 94137559

Sampler's Name: MAX MAJESKI
Sampler's Signature:

Proj. No.: 94137559
Project Name: PHARR PROPERTY
PARKER COUNTY, TX

Lab use only
Due Date:
Temp. of coolers when received (C°): 1 2 3 4 5
Page 1 of 1

Loc: 490
36655

Matrix	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	Start Depth	End Depth	No/Type of Containers: VOA	AG 1 L	250 ml	P/O	RSK-175 (methane, ethane, ethene, propane, n-butane, acetylene)	Lab Sample ID (Lab Use Only)
W	9/27/13	1126		X	WW-02-PHR-092713	—	—	6				X	01

Turn around time: ☐ Normal ☐ 25% Rush ☐ 50% Rush ☐ 100% Rush

	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by (Signature)	9/30/13	1325		9/30/13	1325
Relinquished by (Signature)	9/30/13	1700		10/1/13	0820
Relinquished by (Signature)					
Relinquished by (Signature)					

NOTES:

Matrix: WW - Wastewater; W - Water; S - Soil; SD - Solid; L - Liquid; A - Air Bag; C - Charcoal tube; SL - sludge; O - Oil
Container: VOA - 40 ml vial; AG - Amber / Or Glass 1 Liter; 250 ml - Glass wide mouth; P/O - Plastic or other

Houston Office: 11555 Clay Road, Suite 100, Houston, Texas 77043, (713) 690-8989 Fax (713) 690-8787
Dallas Office: 8901 Carpenter Freeway, Suite 100, Dallas, Texas 75247, (214) 630-1010 Fax (214) 630-7070
Fort Worth Office: 2601 Gravel Drive, Fort Worth, Texas 76118, (817) 268-8600 Fax (817) 268-8602
Austin Office: 5307 Industrial Oaks Blvd. # 160, Austin, Texas 78735, (512) 442-1122 Fax (512) 442-1181
Midland Office: 24 Smith Rd., # 261, Midland, Texas 79705, (432) 684-9600 Fax (43[illegible]9608

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 490-36655-1

Login Number: 36655
List Number: 1
Creator: Gambill, Shane

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Headspace larger than 1/4" in one or more vials, one vial with accpt. headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #:	385151	Job #:	23063	IS-67344
Sample Name/Number:	WWG-02-PUR-092713			
Company:	Terracon Consultants, Inc.			
Date Sampled:	9/27/2013			
Container:	Cali-5-Bond Bag			
Field/Site Name:	Purdue Property			
Location:	Parker County, Texas			
Formation/Depth:				
Sampling Point:				
Date Received:	10/01/2013	Date Reported:	11/08/2013	

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{18}O$ ‰
Carbon Monoxide	nd			
Helium	0.120			
Hydrogen	nd			
Argon	0.312			
Oxygen	4.56			
Nitrogen	26.03			
Carbon Dioxide	0.12			
Methane	65.03	-51.39	-199.0	
Ethane	3.71	-33.14		
Ethylene	nd			
Propane	0.0788	-25.72		
Propylene	nd			
Iso-butane	0.0180			
N-butane	0.0100			
Iso-pentane	0.0053			
N-pentane	0.0022			
Hexanes +	0.0047			

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Isotopic composition of oxygen is relative to VSMOW, except for carbon dioxide which is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 385152 Job #: 23063 IS-67344 Co. Job#:
Sample Name: WWW-02-PUR-092713 Co. Lab#:
Company: Terracon Consultants, Inc.
Date Sampled: 9/27/2013
Container: Dissolved Gas Bottle
Field/Site Name: Purdue Property
Location: Parker County, Texas
Formation/Depth:
Sampling Point:
Date Received: 10/01/2013 Date Reported: 11/11/2013

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Helium	na			
Hydrogen	nd			
Argon	0.208			
Oxygen	0.27			
Nitrogen	10.09			
Carbon Dioxide	0.10			
Methane	83.14	-50.66	-195.9	
Ethane	6.02	-32.91		
Ethylene	nd			
Propane	0.130	-27.1		
Propylene	nd			
Iso-butane	0.0133			
N-butane	0.0158			
Iso-pentane	0.0032			
N-pentane	0.0019			
Hexanes +	0.0040			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 955
Specific gravity, calculated: 0.631

Remarks: ** Propane isotopes obtained online via GC-C-IRMS

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH
ISOTECH LABORATORIES INC

ANALYSIS REPORT

Lab #: 385153 Job #: 23063 IS-67344 Co. Job#:
Sample Name: WWW-02(2)-PUR-092713 Co. Lab#:
Company: Terracon Consultants, Inc.
Date Sampled: 9/27/2013
Container: Dissolved Gas Bottle
Field/Site Name: Purdue Property
Location: Parker County, Texas
Formation/Depth:
Sampling Point:
Date Received: 10/01/2013 Date Reported: 11/11/2013

Component	Chemical mol. %	$\delta^{13}C$ ‰	δD ‰	$\delta^{15}N$ ‰
Carbon Monoxide	nd			
Helium	na			
Hydrogen	nd			
Argon	0.213			
Oxygen	0.096			
Nitrogen	9.84			
Carbon Dioxide	0.11			
Methane	83.44	-50.62	-198.2	
Ethane	6.12	-32.91		
Ethylene	nd			
Propane	0.136	-27.1		
Propylene	nd			
Iso-butane	0.0143			
N-butane	0.0171			
Iso-pentane	0.0036			
N-pentane	0.0022			
Hexanes +	0.0045			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 960
Specific gravity, calculated: 0.630

Remarks: ** Propane isotopes obtained online via GC-C-IRMS

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

ISOTECH

Send Data and Invoice to

Name: MAX MAJESKO
Company: TERRACON
Address: 8901 CARPENTER FWY #100
DALLAS, TEXAS 75247
Phone: 214-630-1010
Fax: 214-630-7070
Email: dmmajesko@terracon.com

Project: FUTURE PROPERTY
Location: PARKER COUNTY, TEXAS
Sampled by: MAX MAJESKO

Isotech Laboratories, Inc.
1308 Parkland Court
Champaign, IL 61821
Phone: 217-398-3490
Fax: 217-398-3493
www.isotechlabs.com
mail@isotechlabs.com

Sample Description

Container Number	Sample Identification	Date Sampled	Analyses Requested: Compositional Analysis (N2, CO2, O2, Ar, H2, He, CH4, C2H6, C3H8, iC4H10, nC4H10, neoC5H12, iC5H12, nC5H12, C6+)	Isotopic Analysis (δ13C/12C (δ13C) and 2H/1H (δD) methane; δ13C/12C (δ13C) ethane; δ13C/12C (δ13C) propane)		Comments
1	WWG-02-FUR-092713	9/27/13	X	X	X	10:23 CAL2-5 FUND BAL

Chain-of-Custody Record

	Signature	Company	Date	Time
Relinquished by		TERRACON	9/30/13	1300
Received by	Peter Cabelo	Isotech	10/1/13	0925
Relinquished by				
Received by				
Relinquished by				
Received by				

ISOTECH

Send Data and Invoice to

Name: MAX MAJESKO
Company: TERRACON
Address: 8901 CARPENTER FWY #100
DALLAS, TEXAS 75247
Phone: 214-630-1010
Fax: 214-630-7070
Email: dmmajesko@terracon.com

Project: PURDUE PROPERTY
Location: PARKER COUNTY, TEXAS
Sampled by: MAX MAJESKO

Isotech Laboratories, Inc.
1308 Parkland Court
Champaign, IL 61821
Phone: 217-398-3490
Fax: 217-398-3493
www.isotechlabs.com
mail@isotechlabs.com

Sample Description

Container Number	Sample Identification	Date Sampled	Analyses Requested: Compositional Analysis	Analyses Requested: N_2, CO_2, O_2, C_1, C_2, C_3, iC_4, nC_4, iC_5, nC_5, H_2S, C_6+	Analyses Requested: $\delta^{13}C$ (CO_2)	Analyses Requested: $\delta^{13}C$ (C_1) and δD (C_1)	Comments
1	WWW-OA-PUR-072713	9/27/13	X	X	X		1L BOTTLE (PLASTIC)
1	WWW-OA(2)-PUR-072713	9/27/13	X	X	X		1L BOTTLE (PLASTIC)

Chain-of-Custody Record

	Signature	Company	Date	Time
Relinquished by		TERRACON	9/30/13	1320
Received by	Peter Cabelo	Isotech	10/1/13	0805
Relinquished by				
Received by				
Relinquished by				
Received by				

ISOTECH
ISOTECH LABORATORIES INC
www.isotechlabs.com

Isotech Gas Data

Job 23063
CoreTrac 15-87344

nd = not detected, ns = not analyzed
* Analysis is of gas extracted from water by headspace equilibration. Analysis has been corrected for helium added to create headspace.
* Addition of helium negates the ability to detect native helium and may negate the ability to detect hydrogen.
Samples without He dilution factor had sufficient headspace to be extracted directly
** Isotopes obtained online via GC-C-IRMS

Isotech Lab No.	Sample Name	Sample Date	Sample Time	Field Name	Location	GC Date	He %	H_2 %	Ar %	O_2 %	CO_2 %	N_2 %	CO %	C_1 %	C_2 %	C_2H_4 %	C_3 %	C_3H_6 %	iC_4 %	nC_4 %	iC_5 %	nC_5 %	C_6+ %	MS Date	$\delta^{13}C_1$ ‰	δD_1 ‰	$\delta^{13}C_2$ ‰	δD_2 ‰	$\delta^{13}C_3$ ‰	Specific Gravity	BTU	Helium dilution factor *
385151	WWG-02 PUR-092713	9/27/2013	10:33	Purdue Property	Parker County, Texas	11/7/2013	0.120	nd	0.312	4.56	0.12	26.03	nd	65.03	3.71	nd	0.0788	nd	0.0180	0.0180	0.0051	0.0022	0.0047	11/7/2013	-51.39	-199.0	-33.14	-25.72	0.709	728		
385152	WWW-02-PUR-092713	9/27/2013	11:32	Purdue Property	Parker County, Texas	11/7/2013	ns	nd	0.208	0.27	0.10	10.09	nd	83.14	6.02	nd	0.130	nd	0.0133	0.0158	0.0037	0.0019	0.0040	11/8/2013	-50.66	-195.9	-32.91	-27.1	0.631	955	0.45	
385153	WWW-02(2)-PUR-092713	9/27/2013	12:12	Purdue Property	Parker County, Texas	11/7/2013	ns	nd	0.213	0.096	0.11	9.84	nd	83.44	6.12	nd	0.136	nd	0.0141	0.0171	0.0036	0.0022	0.0045	11/8/2013	-50.62	-198.2	-32.91	-27.1	0.630	960	0.44	

Range Safe Water?

9

Ambient Air Testing (Tab 1)

Upon arrival at your property, Premier tested the air in various locations to identify whether there were levels of natural gas components (*i.e.*, methane, ethane, and propane) that might present a safety concern. These gases are not toxic, but may be flammable if the concentration level reaches the Lower Explosive Limit (LEL). The LEL is the lowest concentration of a gas in the air that can explode given an ignition source (*i.e.*, a spark or flame). As you will see from the test reports, **the level of these gases found in the air was not even remotely close to the applicable LELs.** For example, the LEL for methane is 50,000 parts per million (ppm) and the highest reading of methane in any of the air samples collected from the 25 properties was only 13.9 ppm. In other words, the highest reading of methane in the air sample collected was only .03% of the LEL. The air readings for the highest concentrations of ethane and propane for any of the 25 properties were also less than .05% of the applicable LELs. **Thus, the air was safe to breathe and the tests showed that there was no concern for explosion around your well.**

Water Well Headspace Gas Sampling

Premier also sampled gas from the headspace of your water well to determine if methane, ethane, propane, or butane were present at concentrations above the applicable LELs. The following table shows the results for your property and the corresponding LEL:

Date	Methane LEL = 50,000 ppm	Ethane LEL = 50,000 ppm	Propane LEL = 21,000 ppm	Butane LEL = 19,000 ppm
12/28/2010	197,700 ppm	10,800 ppm	123 ppm	63 ppm

nd = not detected

As I previously told you, it is strongly suggested that you properly vent your water well to avoid accumulation of gas in the headspace. This recommendation is made from a safety perspective and for the efficient operation of your pump equipment. The United States Department of the Interior has advised that methane will not accumulate if a well is properly vented to the air.[1] We also discussed that I have arranged for Peck's Water Well Service to install a vent on your well at Range's expense. Please let me know if you had any problems getting the vent installed.

Well Water Sampling (Tabs 2 & 3)

Premier tested for the potential presence of over 135 different chemicals, elements, minerals, and other constituents in your water to determine whether there was any concentration that could make your water unsafe to drink or use. The test results were evaluated using the Texas Risk Reduction Program Protective Concentration Level (TRRP PCL), which is a very conservative standard established by the Texas Commission on Environmental Quality (TCEQ)

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[1] *See* U.S. Department of the Interior, U.S. Geological Survey Fact Sheet 2006-3011, METHANE IN WEST VIRGINIA GROUND WATER (January 2006).

Nonetheless, Range is still committed to its neighbors to help locate the source of the gas in the aquifer. Range utilized its industry-leading professionals – engineers, geologists, and other technical staff – to conduct a thorough investigation of the situation starting in August 2010. To go one step further, Range hired outside experts to investigate the potential sources of the natural gas in the aquifer, including whether Range's wells had any responsibility for the presence of those gases. These independent experts and their findings are summarized as follows:

- John McBeath, P.E., an independent petroleum engineer with over 20 years of experience in the drilling and completion of gas wells, verified that the wellbore integrity of the Teal and Butler wells was sound and he confirmed that there are **no** leaks in Range's wells that could have led to gas in the aquifer.

- Dr. Charles Kreitler, Ph.D., an independent geologist with 35 years of experience in groundwater investigations, determined that the natural gas found in the aquifer came from a gas-bearing formation called the Strawn that lies just below the aquifer and not from the Barnett Shale that lies a mile below the aquifer.

- Dr. Mark McCaffrey, Ph.D. and Dr. Alan Kornacki, Ph.D. are independent petroleum geochemists with a combined 46 years of experience in the application of geochemistry to oil and gas exploration. Drs. McCaffrey and Kornacki conducted a "gas fingerprinting" analysis and were able to conclusively match the natural gas found in the area water wells to natural gas found in the Strawn formation. They identified that the distinguishing characteristic between the natural gas found in the Strawn and the Barnett Shale is the concentration of nitrogen in the gas – Strawn gas has a much higher concentration of nitrogen. The gas samples from the area water wells (including yours) contain a similar "fingerprint" to the Strawn gas – *i.e.*, higher concentration of nitrogen. Importantly, Drs. McCaffrey and Kornacki evaluated the EPA's test results and advised the Railroad Commission that the EPA's test could not be used to identify the source of the gas in the aquifer.

These experts, and many others, have concluded that the migration of gas from the Strawn to the aquifer is primarily a naturally occurring phenomenon that has occurred over hundreds of years. However, this natural migration of gas from the Strawn to the aquifer has likely been accelerated by several factors, including water wells drilled into the Strawn formation, the continuing drawdown of the aquifer by the increased number of water wells in the area over the last ten years, and, potentially, shallow gas wells nearby that produced gas from the Strawn many years ago.

Range has and will continue to operate with a focus on the health and safety for those in the area of our operations, especially our neighbors. We have taken this situation very seriously and have undertaken a thorough investigation in cooperation with the Railroad Commission staff since August 2010. We hope that the information contained in this letter gives you peace of mind that your water is safe to drink, but we understand that you still may have questions or concerns about the test results. You are certainly welcome to call me and I will see that your questions or concerns are addressed. But we have also arranged, at Range's expense, for Keith

the constituents tested for in your well exceed the government standards. **There were no gases or other constituents present in your water that would make your water unsafe to drink.**

Soil Gas Sampling (Tabs 4 & 5)

As previously stated, Talon collected gas samples from the soil around 117 locations to determine whether there was a safety concern. Tabs 4 and 5 to this letter include a summary of the test results and a corresponding aerial map that shows where the samples were collected. The identification number for each sample location on the map (*e.g.*, SG-001) corresponds to the same identification number under the column entitled, "Sample ID," on the summary table. The soil gas test results show that there were no concentrations of methane, ethane, propane, or butane in the soil that would present a concern for explosion. For example, the highest reading of methane in all of the 117 samples was only .176% of the LEL. **Thus, there is no safety concern with respect to the presence of these gases in the soil.**

Conclusion as to the Source of Gas

None of the testing to date – including that by the EPA – shows that any of Range's operations have had any impact on the groundwater in your area. There has been speculation by the media and others about the source of the gas. The purpose of this letter is to first and foremost alleviate any health and safety concerns you might have concerning your water. However, it is worth mentioning a few points to help you better understand where the gas in the aquifer is coming from.

Range's Butler Unit 1-H and Teal Unit 1-H wells were drilled to a depth of about 5,800 feet below the surface of the earth. The base of the aquifer is no more than approximately 400 feet below the surface. This one-mile vertical gap between the area where Range is producing gas from the Barnett Shale and the aquifer is filled with geologic formations (*i.e.*, rock) that serve as barriers between the aquifer and the Barnett Shale. There is no evidence that Range's operations at more than a mile below the surface of the earth and more than a mile below the aquifer caused or contributed to the migration of natural gas into in the aquifer and an expert in the field of fracing of Barnett Shale wells testified at the Railroad Commission that it would be impossible for fracing to have impacted your water well.

Moreover, natural gas was present in the aquifer long before Range drilled the Butler and Teal wells in 2009. For example, a water well in your area drilled in 2005 (four years before Range drilled the Butler and Teal wells) flared natural gas. Further, the Lake Country Acres public water supply has test results going back to 1995 that show the presence of natural gas in the water.

RANGE RESOURCES

February 2, 2011

Steven & Shyla Lipsky
c/o David Ritter
Taylor, Olson, Adkins, Sralla & Elam, L.L.P.
6000 Western Place, Suite 200
Fort Worth, Texas 76107

See page 2 – water well head space

RE: Water, Air and Soil Test Results

Dear Mr. and Mrs. Lipsky:

I am writing to update you on the results of the environmental testing that was recently conducted on your property. **The results show that your water is safe to drink and there is no danger in using the water in your home.** Attached to this letter you will find the following:

Tab 1	Summary of Field Screening Readings;
Tab 2	Summary of Validated Groundwater Analytical Data and Comparison to Evaluation Standards for your well;
Tab 3	Groundwater Analytical Data (detailed report from your well);
Tab 4	Summary of Soil Gas Sampling Results; and
Tab 5	Aerial Map of Soil Gas Survey Samples.

Please note that these results are from independent environmental consulting firms that used reputable, independent, and industry-accepted laboratories to analyze the samples collected from your property.

At Range's expense, a team of experienced and independent experts in groundwater investigations sampled and analyzed the groundwater from 25 properties in your area (including yours) to determine if the water is safe to drink. The field crew was comprised of engineers and technicians from Premier Environmental Services, Inc. Further, Talon/LPE, an independent environmental consulting firm, collected gas samples from the soil of 117 locations. Keith Wheeler, a hydrogeologist with 23 years of experience in subsurface investigations, assisted in preparing the plan and protocol that were eventually implemented by Premier and Talon. Mr. Wheeler was also on the ground observing and overseeing Premier's and Talon's work, including the following: (1) Premier's collection of samples from (a) the ambient (outside) air, (b) the headspace of your water well (that's the space between the casing and the pipe from the pump), and (c) your well water; and (2) Talon's collection of soil gas samples.

Range Resources Corporation
100 Throckmorton Street Suite 1200 Fort Worth, Texas 76102 Tel. (817) 870-2601 Fax (817) 870-2316

RANGE RESOURCES

February 2, 2011

Ms. Michelle Perdue
(b) (6)

See page 2—
water well
head space

RE: Water, Air and Soil Test Results

Dear Ms. Perdue:

I am writing to update you on the results of the environmental testing that was recently conducted on your property. **The results show that your water is safe to drink and there is no danger in using the water in your home.** Attached to this letter you will find the following:

Tab 1	Summary of Field Screening Readings;
Tab 2	Summary of Validated Groundwater Analytical Data and Comparison to Evaluation Standards for your well;
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Range Resources Corporation
100 Throckmorton Street Suite 1200 Fort Worth, Texas 76102 Tel. (817) 870-2601 Fax (817) 870-2316

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Premier also sampled gas from the headspace of your water well to determine if methane, ethane, propane, or butane were present at concentrations above the applicable LELs. The following table shows the results for your property and the corresponding LEL:

Date	Methane LEL = 50,000 ppm	Ethane LEL = 30,000 ppm	Propane LEL = 21,000 ppm	Butane LEL = 15,000 ppm
12/28/2010	197,700 ppm	10,800 ppm	123 ppm	63 ppm

nd = not detected

As I previously told you, it is strongly suggested that you properly vent your water well to avoid accumulation of gas in the headspace. This recommendation is made from a safety perspective and for the efficient operation of your pump equipment. The United States Department of the Interior has advised that methane will not accumulate if a well is properly vented to the air.[1] We also discussed that I have arranged for Peck's Water Well Service to install a vent on your well at Range's expense. Please let me know if you had any problems getting the vent installed.

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[1] *See* U.S. Department of the Interior, U.S. Geological Survey Fact Sheet 2006-3011, METHANE IN WEST VIRGINIA GROUND WATER (January 2006).

the constituents tested for in your well exceed the government standards. **There were no gases or other constituents present in your water that would make your water unsafe to drink.**

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Conclusion as to the Source of Gas

None of the testing to date – including that by the EPA – shows that any of Range's operations have had any impact on the groundwater in your area. There has been speculation by the media and others about the source of the gas. The purpose of this letter is to first and foremost alleviate any health and safety concerns you might have concerning your water. However, it is worth mentioning a few points to help you better understand where the gas in the aquifer is coming from.

Range's Butler Unit 1-H and Teal Unit 1-H wells were drilled to a depth of about 5,800 feet below the surface of the earth. The base of the aquifer is no more than approximately 400 feet below the surface. This one-mile vertical gap between the area where Range is producing gas from the Barnett Shale and the aquifer is filled with geologic formations (*i.e.*, rock) that serve as barriers between the aquifer and the Barnett Shale. There is no evidence that Range's operations at more than a mile below the surface of the earth and more than a mile below the aquifer caused or contributed to the migration of natural gas into in the aquifer and an expert in the field of fracing of Barnett Shale wells testified at the Railroad Commission that it would be impossible for fracing to have impacted your water well.

Moreover, natural gas was present in the aquifer long before Range drilled the Butler and Teal wells in 2009. For example, a water well in your area drilled in 2005 (four years before Range drilled the Butler and Teal wells) flared natural gas. Further, the Lake Country Acres public water supply has test results going back to 1995 that show the presence of natural gas in the water.

Nonetheless, Range is still committed to its neighbors to help locate the source of the gas in the aquifer. Range utilized its industry-leading professionals – engineers, geologists, and other technical staff – to conduct a thorough investigation of the situation starting in August 2010. To go one step further, Range hired outside experts to investigate the potential sources of the natural gas in the aquifer, including whether Range's wells had any responsibility for the presence of those gases. These independent experts and their findings are summarized as follows:

- John McBeath, P.E., an independent petroleum engineer with over 20 years of experience in the drilling and completion of gas wells, verified that the wellbore integrity of the Teal and Butler wells was sound and he confirmed that there are **no** leaks in Range's wells that could have led to gas in the aquifer.

- Dr. Charles Kreitler, Ph.D., an independent geologist with 35 years of experience in groundwater investigations, determined that the natural gas found in the aquifer came from a gas-bearing formation called the Strawn that lies just below the aquifer and not from the Barnett Shale that lies a mile below the aquifer.

- Dr. Mark McCaffrey, Ph.D. and Dr. Alan Kornacki, Ph.D. are independent petroleum geochemists with a combined 46 years of experience in the application of geochemistry to oil and gas exploration. Drs. McCaffrey and Kornacki conducted a "gas fingerprinting" analysis and were able to conclusively match the natural gas found in the area water wells to natural gas found in the Strawn formation. They identified that the distinguishing characteristic between the natural gas found in the Strawn and the Barnett Shale is the concentration of nitrogen in the gas – Strawn gas has a much higher concentration of nitrogen. The gas samples from the area water wells (including yours) contain a similar "fingerprint" to the Strawn gas – *i.e.*, higher concentration of nitrogen. Importantly, Drs. McCaffrey and Kornacki evaluated the EPA's test results and advised the Railroad Commission that the EPA's test could not be used to identify the source of the gas in the aquifer.

These experts, and many others, have concluded that the migration of gas from the Strawn to the aquifer is primarily a naturally occurring phenomenon that has occurred over hundreds of years. However, this natural migration of gas from the Strawn to the aquifer has likely been accelerated by several factors, including water wells drilled into the Strawn formation, the continuing drawdown of the aquifer by the increased number of water wells in the area over the last ten years, and, potentially, shallow gas wells nearby that produced gas from the Strawn many years ago.

Range has and will continue to operate with a focus on the health and safety for those in the area of our operations, especially our neighbors. We have taken this situation very seriously and have undertaken a thorough investigation in cooperation with the Railroad Commission staff since August 2010. We hope that the information contained in this letter gives you peace of mind that your water is safe to drink, but we understand that you still may have questions or concerns about the test results. You are certainly welcome to call me and I will see that your questions or concerns are addressed. But we have also arranged, at Range's expense, for Keith

Accutest Laboratories

Report of Analysis

Client Sample ID:	WWW02-PER-051112		
Lab Sample ID:	TC8199-1	**Date Sampled:**	05/11/12
Matrix:	AQ - Ground Water	**Date Received:**	05/12/12
Method:	RSKSOP-147/175	**Percent Solids:**	n/a
Project:	First Quarterly Well Sampling, Parker County, Texas		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	SS002583.D	1	05/21/12	FI	n/a	n/a	GSS131
Run #2	SS002584.D	50	05/21/12	FI	n/a	n/a	GSS131

CAS No.	Compound	Result	MQL	SDL	Units	Q
74-82-8	Methane	1.41 [a]	0.025	0.015	mg/l	
74-85-1	Ethene	0.00050 U	0.0010	0.00050	mg/l	
74-84-0	Ethane	0.025 U [a]	0.050	0.025	mg/l	
74-98-6	Propane	0.0027	0.0015	0.00075	mg/l	
75-28-5	Isobutane	0.00075 U	0.0015	0.00075	mg/l	
106-97-8	Butane	0.00075 U	0.0015	0.00075	mg/l	

(a) Result is from Run# 2

U = Not detected SDL - Sample Detection Limit
MQL = Method Quantitation Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Summary of Hits

Job Number: TC20890
Account: EarthCon Consultants
Project: Quarterly Well Sampling, Parker County, Texas
Collected: 11/30/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC20890-1	WW2-PUR-113012					
Benzene		0.00070 J	0.0010	0.00034	mg/l	SW846 8260B
Methane		20.1	0.13	0.075	mg/l	RSKSOP-147/175
Ethane		3.5	0.25	0.13	mg/l	RSKSOP-147/175
Propane		0.0668	0.0015	0.00075	mg/l	RSKSOP-147/175
Isobutane		0.00841	0.0015	0.00075	mg/l	RSKSOP-147/175
Butane		0.0103	0.0015	0.00075	mg/l	RSKSOP-147/175

Range's own testing shows getting higher

Summary of Hits

Job Number: TC14971
Account: EarthCon Consultants
Project: Quarterly Well Sampling, Parker County, Texas
Collected: 08/17/12

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	MQL	SDL	Units	Method
TC14971-1	WWW02-PUR-081712					
Benzene		0.00069 J	0.0010	0.00025	mg/l	SW846 8260B
Methane		4.24	0.050	0.030	mg/l	RSKSOP-147/175
Ethane		0.050 U	0.10	0.050	mg/l	RSKSOP-147/175
Propane		0.0213	0.0015	0.00075	mg/l	RSKSOP-147/175
Isobutane		0.0031	0.0015	0.00075	mg/l	RSKSOP-147/175
Butane		0.0032	0.0015	0.00075	mg/l	RSKSOP-147/175

In July 2010, after we discovered that our well water went bad as the pump kept burning out due to gas build up. I reached out to the Texas Rail Road Commission and asked if they have the technology to find a new area to place water well. The Texas Rail Road Commission told me there was drilling in my immediate area that was completed in 2009; and that they needed to do a branded head pressure test. That test came back positive and the Texas Railroad Commission began an official investigations. Field Personnel from the Texas Railroad Commission told me that I was lucky- as I had caught it early and prevented a disaster from happening.

Then there was silence on my case from the Texas Railroad Commission, until I received a call from the EPA. The EPA came in and tested my water and took a gas bag test from my hose- the EPA told me that Range Resources contaminated my water and they issued an emergency order due to the matching of the gas isotopes in my water, and the gas from my hose witch hooked up to my water well head space and Range Resources well.

The Texas Railroad Commission contacted me and said I had 15 days to attend a hearing about my case; they refused me any discovery and the EPA refused to attend as well. During this hearing, which I grant not to be a party at, I was told that Range Resources was not responsible. Afterwards I sued Range resources, during this suit Judge Tray Lofton ruled I had no grounds for a lawsuit, and the videos of my hose on fire was deceptive because it was hooked up to a "vent", and implied it was hooked to an outside source. In reality this hose was hooked up to my water wellhead space vent, which always only had gas flowing through it, not water.

In return, I have been sued by Range Resources for a defamation suit, the EPA has withdrawn its emergency order but never claimed that their findings weren't valid, and my name has been dragged through the dirt with claims of me being a hoax. Currently the defamation suit against me is at the Texas Supreme Court, if it isn't thrown out- my family will be ruined and I will loose everything.

Evidence concerning the Lipskys

In the trial court, through responding to relators' motions to dismiss, Range presented evidence that, according to Range, proves that the Lipskys, or their agents, made false, misleading, and disparaging communications. The alleged false and misleading communications include disseminating "misleading videos . . . that show [Steven Lipsky] lighting the end of a garden hose on fire" when the hose was actually connected to the well's gas vent, and stating or implying that

- Range's drilling went under the Lipskys house while omitting that Range's wellbore was over a mile below the surface;
- the Lipskys' well no longer pumped water (when it actually could);
- the Lipskys had found unnatural detergents in the water;
- the Lipskys could not live in their home (although they continued to do so);
- Range would eventually "own" the Lipskys' home (which implied that Range was responsible for contaminating the Lipskys' water source and would be liable for doing so);[16]
- Range was politically powerful and had prevailed with the Railroad Commission through corruption,[17] even though the Railroad Commission had considered extensive evidence to support its decision and the Lipskys had not participated in the Railroad Commission's hearing;

[16]This statement was made to an appraisal review board and, according to Steven Lipsky's deposition, could have been repeated to friends and family.

[17]For example, Range presented evidence that Steven Lipsky told a newspaper reporter that Range owned the Railroad Commission and "got away with" contaminating his well.

Allegations and Truths

Allegation: The Lipskys sent out a video showing a lit garden hose connected to a gas vent.
Truth: The Lipskys did send out a video that shows the entire well including a hose attached to the water well headspace. Lipsky explained everything in the video. Lipsky was not the one to edit the video. There were additional videos that were made but were only given to people who had seen the well and were aware of the mechanics and set up of the vent.

Allegation: Range's drilling went under the Lipskys house.
Truth: The horizontal wellbore does go under the water well regardless of how deep it is.

Allegation: The Lipskys well no longer pumped water.
Truth: The well will temporarily pump water but then purges due to gas locking. If the pump is not turned off it will burn out the pump motor.

Allegation: The Lipskys had found unnatural detergents in the water.
Truth: Detergents were found in testing by Wolf Eagle.

Allegation: The Lipskys could not live in their home.
Truth: Lipskys had to disconnect the water from their home and stay with family until they could get the home set up to have city water trucked in.

Allegation: Lipsky stated Range would own his home.
Truth: After the EPA informed the Lipskys that their water was contaminated due to gas drilling by Range. Lipsky responded to a question about what he would do that the gas company could have his home.

Allegation: Range was politically powerful and had prevailed with the Railroad Commission through corruption.
Truth: Lipsky was under the impression that it was common knowledge that the TRC worked for the industry. This was confirmed by the Sunset Advisory Commission.

Allegation: The Lipskys could literally light their water on fire and the water was unsafe to drink.
Truth: Lipskys water has lit on fire since the first day the problem was noticed in July 2010 and continues to light on fire. Water that lights on fire is assumed unsafe to drink.

Allegation: Range's drilling operations contaminated the water.
Truth: The Environmental Protection Agency told the Lipskys that Range Resources contaminated their water and only backed down after Range Resources sued them. The EPA has never informed the Lipskys that their conclusions have changed.

Allegation: Range treated the Lipskys like criminals.
Truth: Lipsky was deposed for hours. Range insinuated that the Lipskys created this problem to save money on their taxes therefore committing tax fraud.

RANGE RESOURCES

February 2, 2011

Steven & Shyla Lipsky
c/o David Ritter
Taylor, Olson, Adkins, Sralla & Elam, L.L.P.
6000 Western Place, Suite 200
Fort Worth, Texas 76107

See page 2- water well head space

RE: Water, Air and Soil Test Results

Dear Mr. and Mrs. Lipsky:

I am writing to update you on the results of the environmental testing that was recently conducted on your property. **The results show that your water is safe to drink and there is no danger in using the water in your home.** Attached to this letter you will find the following:

Tab 1	Summary of Field Screening Readings;
Tab 2	Summary of Validated Groundwater Analytical Data and Comparison to Evaluation Standards for your well;
Tab 3	Groundwater Analytical Data (detailed report from your well);
Tab 4	Summary of Soil Gas Sampling Results; and
Tab 5	Aerial Map of Soil Gas Survey Samples.

Please note that these results are from independent environmental consulting firms that used reputable, independent, and industry-accepted laboratories to analyze the samples collected from your property.

At Range's expense, a team of experienced and independent experts in groundwater investigations sampled and analyzed the groundwater from 25 properties in your area (including yours) to determine if the water is safe to drink. The field crew was comprised of engineers and technicians from Premier Environmental Services, Inc. Further, Talon/LPE, an independent environmental consulting firm, collected gas samples from the soil of 117 locations. Keith Wheeler, a hydrogeologist with 23 years of experience in subsurface investigations, assisted in preparing the plan and protocol that were eventually implemented by Premier and Talon. Mr. Wheeler was also on the ground observing and overseeing Premier's and Talon's work, including the following: (1) Premier's collection of samples from (a) the ambient (outside) air, (b) the headspace of your water well (that's the space between the casing and the pipe from the pump), and (c) your well water; and (2) Talon's collection of soil gas samples.

Range Resources Corporation
100 Throckmorton Street Suite 1200 Fort Worth, Texas 76102 Tel. (817) 870-2601 Fax (817) 870-2315

Peck Water Well Service

Took this picture July 2010. Pecks drilled the well in 2005 and they said the water was good and there was no gas in it. We called them out because the well was having problems pumping and after inspecting it they claimed it was gas locking because it was so full of gas and that the pump would burn out if we continued to use it. They said they never saw a good water well go bad like this before.

Mr. and Mrs. Stephen Lipsky, Residents

(b) (6)

[redacted]

Well Water Laboratory Test Results

Surfactants—MBAs & CTAs

Sample Collection Date:

August 14, 2010

Allegations and Truth Lipsky

10

Armstrong
Forensic Laboratory, Inc.
330 Lochwin Green Trail Arlington, Texas 76012-3458
817-275-2691 Fax: 817-275-1883

Andrew T. Armstrong, PhD
John M. Corn, MA, RS
Marion K. Armstrong, MSPH, MBA, CIH
Kelly L. Wouters, PhD

August 20, 2010

Ms. Alisa Rich
Wolf Eagle Environmental
P.O. Box 270541
Flower Mound, TX 75022-0541

Re: Environmental Testing
Lipsky
Well Water

Submitted By: Ms. Alisa Rich
Wolf Eagle Environmental
Flower Mound, TX

LABORATORY REPORT: B0EN3549-1

Report Sections:

Laboratory Report, Analytical Data, Quality Control Data, Report Qualifiers/Definitions, Sample Receipt Checklist and Chain of Custody.

Sample Descriptions:

Laboratory Identification	Client Description	Matrix	Sample Date	Sample Time	Received Date	Sample Quantity
B0-3549A-001A	Well Water	Liquid	08/14/10	3:14 pm	08/16/10	1 L

Case Narrative:

Analyses of the samples submitted have successfully met the quality control requirements established by Armstrong Forensic Laboratory's (Armstrong) internal policies and the analytical method(s) utilized, unless otherwise noted. Results are not Client Blank subtracted unless noted otherwise. The reported values relate only to the sample(s) submitted for analysis.

Please note that Armstrong is not responsible for any Client errors resulting from improper or incorrect sampling procedures, atmospheric conditions at the time of sampling, from shipping conditions or methods. Unless otherwise noted, samples met laboratory acceptance criteria at the time of receipt.

The analytical results in this report met all applicable accreditation requirements unless otherwise noted. A Data Flag will note any exceptions to the requirements. This report may not be reproduced, except in full, without the written approval of the laboratory.

Respectfully submitted,
Armstrong Forensic Laboratory, Inc.

Michael D. Machen, PhD
Quality Assurance Director
TCEQ T104704 240-07A-TX
LELAP Accreditation Certificate 04117
B0-3549-1/jl

Analytical Data

Lab Number: B0-3549A-001A Client ID: Well Water Date of Analysis: 08/19/10

Methylene Blue Active Substances

Method: APHA 5540C Method Flag: AP

Analyte	Results	Reporting Limits	Units	Dilution Factor	Data Flag
Methylene Blue Active Substances	0.157	0.023	mg/L	1	

Foam of Detergent

Lab QA/QC Method Blanks

Quality Control Data

The data for this file have been reviewed to ensure that method and laboratory requirements have been met. The Client should review data for usability. If you have any concerns or questions on this data, please contact the QA Director.

Methylene Blue Active Substances QC Batch ID: GA 640-050

Extraction Method: APHA 5540C Extraction Date: 08/19/10

Analysis Method: APHA 5540C Analysis Date: 08/19/10

Analyte	MB (mg/L)	LCS (%)	LCSD (%)	MS (%)	MSD (%)	RPD (%)	Data Flag
Methylene Blue Active Substances	< 0.023	100	99	98	92	5.9	

Report Qualifiers/Definitions

Report Qualifiers (Data Flags):

A	-	Analysis accredited by ASCLD/LAB-*International* and TxDPS
AP	-	Accreditation is pending.
B	-	The analyte was detected in the method blank.
BDL	-	Below Detection Limits
C	-	Results are Method blank subtracted
D	-	The sample required dilution to meet AFL QC requirements.
DS	-	The Surrogates/Internal Standards were diluted past report limitations.
E	-	Analysis accredited by NELAP for TCEQ
F	-	Analysis accredited by NELAP for LDEQ
H	-	Analysis accredited by AIHA
J	-	The analyte is below the quantitation limit; the result is estimated.
L	-	Analysis accredited by PJLA for CPSC
N	-	This analyte is not currently a part of Armstrong's accreditation
O	-	Other/Explanation Provided
Q	-	Results are outside AFL/Method acceptance limit.
S	-	Results are Client blank subtracted
W	-	The results are based on the dry weight of the sample.
V	-	Analyte concentration outside calibration range; the result is estimated.

Report Acronyms and Symbols:

BRL	-	Below Reporting Limits
COC	-	Chain of Custody; Evidence Transmittal Letter
DF	-	Dilution Factor
DL	-	Discharge Limit
DUP	-	Duplicate
GC/MS	-	Gas Chromatography/Mass Spectrometry
LCS/D	-	Laboratory Control Sample/Duplicate
MB	-	Method Blank
MS/D	-	Matrix Spike/Duplicate
NA	-	Not Applicable
NR	-	Not reported by Client
RL	-	Reporting Limits are the lowest concentration reportable with confidence.
RPD	-	Relative Percent Deviation
STD	-	Standards
TIC	-	Tentatively Identified Compound
QA	-	Quality Assurance
QC	-	Quality Control

Laboratory Certifications:

American Industrial Hygiene Association Certificate 101413: IHLAP, ELLAP
National Environmental Laboratory Accreditation Program TCEQ T104704 240-07 A-TX, LDEQ 04117
American Society of Crime Laboratory Directors/Laboratory Accreditation Board-*International*: Certificate ALI-037-T for Controlled Substances, Fire Debris and Identification of Unknowns.
Perry Johnson Laboratory Accreditation 64631, Certificate L09-8

Sample Receipt Checklist

Armstrong
Forensic Laboratory
More than just Numbers

Sample Receipt Checklist

Work Order Number B03549A

Date and Time Received: 6/16/2010 3:00:00 PM

Checklist completed by (Signature) Edwards, Daniel G. Date 6/16/2010 3:13:00 PM

Carrier name: Client Delivery

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Applicable ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Applicable ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Applicable ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with all sample labels?	Yes ☑	No ☐	
All samples in proper container(s)?	Yes ☑	No ☐	Not Applicable ☐
All sample containers intact?	Yes ☑	No ☐	Not Applicable ☐
All samples have sufficient volume for indicated test(s)?	Yes ☑	No ☐	Not Applicable ☐
All samples received within holding time?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	Not Applicable ☐
Were samples received on ice?	Yes ☑	No ☐	Not Applicable ☐
Water - All VOA vials have zero headspace?	Yes ☐	No ☐	Not Applicable ☑
Water - All pH's acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐
Water - pH's adjusted at laboratory?	Yes ☐	No ☐	Not Applicable ☑ By:

All No responses must be detailed in the comments section below.

Person contacted: Date contacted: Contacted by:

Comments

Action Taken

Armstrong Forensic Laboratory, Inc. — Chain of Custody

330 Loch'n Green Trail Arlington, Texas 76012-3481 817.275.2691 (voice) 817.276.1885 (fax) www.AFLabs.com

Environmental

B0EN3549-1 6/16/10

Contact: ALISA RICH			**Project:** LIPSKY						**AFL Case No:** ~~B0EN3548-1~~							
Client: Wolf Eagle Environmental			**Site:** Well						**Date Received:** 6/16/10							
Address: PO Box 270541			**Sampler:** D. Sawka						**TAT:** Regular Rush Priority							
Flower Mound TX 75027			**Fax No:** 682 502 6069													
Email: rich@wolfeagle environmental.com			**Temp @ Receipt:** 5c						Sulfate, Chloride, TDS + CTM							
Phone: 682 502 6068 **Fax:** 682 502 6069			**P. O. No.:**													
Lab Use Only	**Sample Information**		**Collection**			**Container Information**										
	Field Identification	**Matrix**	**Date**	**Time**	**G/C**	**#**	**Size**	**Pres.**								
001A	well water	L	8.14.10	3:14	G	1	1L	0	X							
							small *8/16/10									

Notes:	**Released By:** (Signature)	**Date/Time:** 8.16.10 3:44	**Received By:** (Signature)	**Date/Time:**
	Released By: (Signature)	**Date/Time:**	**Received at Lab By**	**Date/Time:** 6/16/10 2:48

Chain of Custody

Documentation from Texas Rail Road Commission showing the Bradenhead Pressure continuing to build at the Teal and Butler Well. Both Wells are leaking gas and both are getting worse especially the Teal. This is a clear violation of Texas Law. This documentation shows that inspectors are present during the time when they are releasing off the pressure daily. These report are clearly showing that the wells are failing.

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Compliance Section

District Office
INSPECTION REPORT

D-C
rev 6/07

JOB NO. 14 143
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV, LP
LEASE/FACILITY BUTLER UNIT
WELL No.(s) 1H
FIELD NEWARK, EAST (BARNETT SHALE)
COUNTY HOOD ☐ COSTAL MGT AREA
☐ COMPLAINT NO.
COMPLAINANT NAME
DIRECTIONS
PETER POPE

LEASE/ID 253732
DRILL PMT. NO.
PLANT NO.
PIT PMT. NO.
PIPELINE PMT NO.
OTHER
LE DOCKET
SFP CODE
SFCU CODE

☐ MUST WITNESS
☑ Field Initiated
☐ Taken By
☐ District ☐ Austin
☐ Backcheck
☐ Co-inspection
☐ Sweep
TOTAL:
UIC WELLS INSP
WELLS INSP 1
SITES INSP 1

% TIME	UIC	ENV	SITE REM
LEGAL ENF		PRO/PROD	TERRA
SFP		OTHER	

GPS COORDINATES: ☐ NO ☑ YES LOG#
LAT LONG

ACTIVITY (check appropriate boxes)

A	☐ BLOWOUT		☐ OIL SPILL (NON SENS)
B	☐ COM. SURFACE DISP. FAC.	Q	☐ OIL SPILL (SENS)
C	☐ COM. DISPOSAL WELL	R	☐ PIT INSPECTION
D	☐ FLARE/VENT	S	☐ PLANT INSP
E	☐ DISPOSAL/INJECTION	T	☐ PLUGGING (OPER)
F	☐ DRILLING RIG	U	☐ PLUGGING (SFP)
G	☐ FIRE	V	☐ PROD WATER SPILL
H	☐ H2S COMPLIANCE INSP.	W	☐ PROD TEST
I	☐ H2S INCIDENT	X	☐ PROD/INT CASING
J	☐ HYDROCARBON STRING	Y	☐ SEAL WELL
K	☑ LEASE INSPECTION	Z	☐ SITE ASSMT (SFCU)
L	☐ MIT	AA	☐ SITE CLEAN UP SFCU
M	☐ MINOR PERMIT	BB	☐ SURFACE CASING
N	☐ OFFICE	CC	☐ WASTE HAULER
O	☐ OTHER		

FIELD INSPECTION STATUS		COMPLIANCE yes	COMPLIANCE no	Prev viols	New viols	Total viols
SWR 3	Signs	☑	☐			
SWR 9	Disposal Wells	☐	☐			
SWR 14(B)(2)	Inactive wells	☑	☐			
SWR 21	Firewalls	☑	☐			
SWR 27	Gas Metering	☐	☐			
SWR 36	Hydrogen Sulfide	☐	☐			
SWR 91	Oil Spill Clean-up	☐	☐			
OTHER		☐	☐			

Comments:

SEE DA

CERTIFY THIS DATA IS TRUE AND COMPLETE:
T. Shutt
ECH NO. 410 DATE 01/03/14

	MILEAGE	TIME	LUNCH
START:	X	0900	(MIN)
END:	X	0930	☐ Job Interrupt

OFFICE REVIEW
BY
DATE

Oil and Gas Division
Compliance Section

INSPECTION REPORT
ATTACHMENT SHEET

rev 5/06

JOB NO. 14

DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV, LP

LEASE/FACILITY# 253732

LEASE/FACILITY BUTLER UNIT

COUNTY HOOD

COMPLAINT NAME

COMPLAINT NO.

ENTRANCE N32.55910°, W97.78907°
SWR 2
ACCESS OK

SWR 3
SIGN POSTED

WELL & BATTERY N32.55803°, W97.78766°
SWR 3
SIGN POSTED

SWR 8
NO VISIBLE POLLUTION

SWR 14B2
ACTIVE - PRODUCING

SWR 17
GAUGE IS READING 8 PSI, PHOTO #3786
CALLED FOR A LEASE OPERATOR
BO STOKES, CO REP, ARRIVED ON LOCATION
HE CLOSED 2" BALL VALVE & NEEDLE VALVE
HE REMOVED GAUGE
GAUGE ZERO OUT
HE OPEN ALL VALVES, PRESSURE BLED OFF LESS THAN 5 SECONDS, AIR ONLY
HE CLOSED ALL VALVES
RE-PLACED GAUGE
RE-OPEN ALL VALVES, GAUGE IS READING 0 PSI
AFTER APPROXIMATELY 15 MINUTES, GAUGE IS STILL READING 0 PSI

CERTIFY THIS DATA IS TRUE AND COMPLETE:

T. Shutt

ECH NO. 410 DATE 01/03/14 Page 2 of 2

OFFICE REVIEW
BY
DATE

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Compliance Section

DW
District Office
INSPECTION REPORT

D-O
rev. 6/07

JOB NO. 13 60886
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV, LP
EASE/FACILITY BUTLER UNIT
VELL No.(s) 1H
IELD NEWARK, EAST (BARNETT SHALE)
OUNTY HOOD ☐ COSTAL MGT AREA
☐ COMPLAINT NO.
MPLAINANT NAME
RECTIONS
ETER POPE

LEASE/ID 253732
DRILL PMT. NO.
PLANT NO.
PIT PMT. NO.
PIPELINE PMT NO.
OTHER
LE DOCKET
SFP CODE
SFCU CODE

☐ MUST WITNESS
☑ Field Initiated
☐ Taken By
☐ District ☐ Austin
☐ Backcheck
☐ Co-inspection
☐ Sweep
TOTAL:
UIC WELLS INSP
WELLS INSP 1
SITES INSP 1

% TIME	UIC	ENV	SITE REM
LEGAL ENF		PRO/PROD	TERRA
SFP		OTHER	

S COORDINATES: ☐ NO ☑ YES LOG#
T LONG

TIVITY (check appropriate boxes)

☐	BLOWOUT	P ☐	OIL SPILL (NON SEN)
☐	COM. SURFACE DISP. FAC.	Q ☐	OIL SPILL (SENS)
☐	COM. DISPOSAL WELL	R ☐	PIT INSPECTION
☐	FLARE/VENT	S ☐	PLANT INSP
☐	DISPOSAL/INJECTION	T ☐	PLUGGING (OPER)
☐	DRILLING RIG	U ☐	PLUGGING (SFP)
☐	FIRE	V ☐	PROD WATER SPILL
☐	H2S COMPLIANCE INSP.	W ☐	PROD TEST
☐	H2S INCIDENT	X ☐	PROD/INT CASING
☐	HYDROCARBON STRING	Y ☐	SEAL WELL
☑	LEASE INSPECTION	Z ☐	SITE ASSMT (SFCU)
☐	MIT	AA ☐	SITE CLEAN UP SFCU
☐	MINOR PERMIT	BB ☐	SURFACE CASING
☐	OFFICE	CC ☐	WASTE HAULER
☐	OTHER		

FIELD INSPECTION STATUS		COMPLIANCE yes	COMPLIANCE no	Prev viols.	New viols.	Total viols.
SWR 2	Access to Property	☑	☐			
SWR 3	Signs	☑	☐			
SWR 8	Water Protection	☑	☐			
SWR 9	Disposal Wells	☐	☐			
SWR 13	Casing/Cementing	☐	☐			
SWR 14(B)(2)	Inactive wells	☑	☐			
SWR 17	Pressure on Bradenhead	☑	☐			
SWR 21	Firewalls	☑	☐			
SWR 22	Protection of Birds	☐	☐			
SWR 27	Gas Metering	☐	☐			
SWR 32	Flaring/Venting	☐	☐			
SWR 36	Hydrogen Sulfide	☐	☐			
SWR 46	Injection Wells	☐	☐			
SWR 91	Oil Spill Clean-up	☐	☐			
OTHER		☐	☐			
OTHER		☐	☐			

mments:

E DA

RTIFY THIS DATA IS TRUE AND COMPLETE:
H NO. 410 DATE 05/21/13

	MILEAGE	TIME	LUNCH
START:	78932	0800	(MIN)
END:	78955	1000	☐ Job Interrupt

OFFICE REVIEW
BY
DATE

Oil and Gas Division
Compliance Section

INSPECTION REPORT
ATTACHMENT SHEET

rev. 5/06

JOB NO. 13
DISTRICT 7B

OPERATOR **LEGEND NATURAL GAS IV, LP** LEASE/FACILITY# **253732**

LEASE/FACILITY **BUTLER UNIT** COUNTY **HOOD**

COMPLAINT NAME _____ COMPLAINT NO. _____

ENTRANCE N32.55910°, W97.78907°
GWR 2
ACCESS OK

GWR 3
SIGN POSTED

WELL & BATTERY N32.55777°, W97.78760°
GWR 3
SIGN POSTED

WR 8
O VISIBLE POLLUTION

WR 14B2
CTIVE - PRODUCING

WR 17
AUGE IS READING 8 PSI, PHOTO #1808
ALLED FOR A LEASE OPERATOR
OSH PARKER, CO REP, ARRIVED ON LOCATION
E CLOSED 2" BALL VALVE & NEEDLE VALVE
E REMOVED GAUGE
AUGE ZERO OUT
E OPEN ALL VALVES, PRESSURE BLED OFF LESS THAN 5 SECONDS, AIR ONLY
E CLOSED ALL VALVES
E-PLACED GAUGE
E-OPEN ALL VALVES, GAUGE IS READING 0 PSI
FTER APPROXIMATELY 15 MINUTES, GAUGE IS STILL READING 0 PSI

ERTIFY THIS DATA IS TRUE AND COMPLETE:

T. Sweet

H NO. **410** DATE **05/21/13** Page **2** of **2**

OFFICE REVIEW
BY _____
DATE _____

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

March 20, 2013

Legend Natural Gas IV, LP (495557)
15021 Katy Hwy Ste 200
Houston, TX 77094-1914

STATUS REPORT

Glenn Osterhoudt Complaint No. 7B-10292
Butler Unit (253732)
Well No. 1H
Newark, East (Barnett Shale) Field
Hood County, Texas
Job No. 13-1501

Mr. Osterhoudt's initial concern was gas leaking. Reinspection conducted on March 13, 2013, by Bobby Schuman revealed the following:

SWR 8:	The previously cited area of standing saltwater affecting an area approximately 25 feet by 100 feet by 3 inches deep within the firewalls at the battery site was remediated.
SWR 13:	The wellhead was secure
SWR 17:	8 PSIG was experienced by the bradenhead. As previously stated, a pressure test was conducted on this well verifying that the 8 PSIG experienced by the bradenhead is not caused by a loss of casing integrity. Since the 8 PSIG is lower than the previously noted 32 PSIG experienced by the bradenhead, the operator is not in violation of SWR 17.

The operator has brought the lease into compliance. No additional reports will be issued. **Please direct any questions with regard to this complaint to Gene Ortiz at (325)-677-3545.**

Sincerely,

Gene Ortiz
Engineering Specialist

GO/mm

☑ Assistant District Director
☐ District Director

cc: Field Operations, RRC, Austin

Glenn Osterhoudt
601 Spring Creek Parkway
Weatherford, TX 76087

AILROAD COMMISSION OF TEXAS
il and Gas Division
ompliance Section

District Office
INSPECTION REPORT

D-O
rev 6/07

JOB NO. 13-1501-02
DISTRICT 7B

PERATOR LEGEND NATURAL GAS IV, LP
EASE/FACILITY BUTLER UNIT
ELL No.(s) 1H
ELD NEWARK, EAST (BARNETT SHALE)
OUNTY PARKER ☐ COSTAL MGT AREA
] COMPLAINT NO. 10292
PLAINANT NAME OSTERHOUDT
RECTIONS

LEASE/ID (9)253732
DRILL PMT. NO.
PLANT NO.
PIT PMT. NO.
PIPELINE PMT NO.
OTHER
LE DOCKET
SFP CODE
SFCU CODE

☐ MUST WITNESS
☐ Field Initiated
☐ Taken By
☐ District ☐ Austin
☑ Backcheck
☐ Co-inspection
☐ Sweep

TOTAL:
UIC WELLS INSP
WELLS INSP 1
SITES INSP 1

% TIME	UIC	ENV	SITE REM
LEGAL ENF		PRO/PROD	TERRA
SFP		OTHER	

S COORDINATES: ☐ NO ☑ YES LOG# BATTERY
r 32.55761 LONG 97.78764

TIVITY (check appropriate boxes)

☐	BLOWOUT	P ☐	OIL SPILL (NON SEN)
☐	COM. SURFACE DISP. FAC.	Q ☐	OIL SPILL (SENS)
☐	COM. DISPOSAL WELL	R ☐	PIT INSPECTION
☐	FLARE/VENT	S ☐	PLANT INSP
☐	DISPOSAL/INJECTION	T ☐	PLUGGING (OPER)
☐	DRILLING RIG	U ☐	PLUGGING (SFP)
☐	FIRE	V ☐	PROD WATER SPILL
☐	H2S COMPLIANCE INSP.	W ☐	PROD TEST
☐	H2S INCIDENT	X ☐	PROD/INT CASING
☐	HYDROCARBON STRING	Y ☐	SEAL WELL
☑	LEASE INSPECTION	Z ☐	SITE ASSMT (SFCU)
☐	MIT	AA ☐	SITE CLEAN UP SFCU
☐	MINOR PERMIT	BB ☐	SURFACE CASING
☐	OFFICE	CC ☐	WASTE HAULER
☐	OTHER		

FIELD INSPECTION STATUS		COMPLIANCE yes	COMPLIANCE no	Prev viols	New viols	Total viols
SWR 2	Access to Property	☑	☐			
SWR 3	Signs	☑	☐			
SWR 8	Water Protection	☑	☐			
SWR 9	Disposal Wells	☐	☐			
SWR 13	Casing/Cementing	☑	☐			
SWR 14(B)(2)	Inactive wells	☑	☐			
SWR 17	Pressure on Bradenhead	☐	☑		10	10
SWR 21	Firewalls	☑	☐			
SWR 22	Protection of Birds	☐	☐			
SWR 27	Gas Metering	☑	☐			
SWR 32	Flaring/Venting	☐	☐			
SWR 36	Hydrogen Sulfide	☐	☐			
SWR 46	Injection Wells	☐	☐			
SWR 91	Oil Spill Clean-up	☐	☐			
OTHER		☐	☐			
OTHER		☐	☐			

20

mments: SWR 2- ACCESS OK
VR 3- SIGNS POSTED AT THE REQUIRED LOCATIONS
VR 8- THERE IS APPROXIMATELY 3"- 4" OF STANDING WATER WITHIN THE FIREWALLS AT THE
ATTERY. FIELD TESTED THE STANDING WATER AT <100 MG/L CHLORIDES. THIS AREA HAS HAD
RAIN EVENT WITHIN THE PAST WEEK. NO POLLUTION FOUND AT THE BATTERY OR WELL.
VR 13- WELLHEAD SECURE
VR 14/27- PRODUCING WELL PER GAS METER
VR 17- THE GAUGE ON THE BRADENHEAD REFLECTS 8 PSIG.
VR 21- METAL FIREWALLS AROUND THE BATTERY WITH A LINER IN PLACE.

ERTIFY THIS DATA IS TRUE AND COMPLETE:
Bobby Schuman
H NO. 077 DATE 03/13/13

	MILEAGE	TIME	LUNCH
START:	49,175	700	(MIN)
END:	49,244	900	☐ Job Interrupt

OFFICE REVIEW
BY
DATE

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

February 12, 2013

Legend Natural Gas IV, LP (495557)
15021 Katy Fwy Ste 200
Houston, TX 77094-1914

INITIAL REPORT

Glenn Osterhoudt Complaint No. 7B-10292
Butler Unit Lease
Well No. 1H
RRC 253732
Newark, East (Barnett Shale) Field
~~Hood~~ County, Texas
Job No. 13-1501

On February 6, 2013, Railroad Commission of Texas District 7B Office was contacted by Glenn Osterhoudt concerning operations on the subject lease. Mr. Osterhoudt's concern was gas leaking. On February 6, 2013, an inspection of the lease was conducted by Bobby Schuman. During the inspection, the following violations of Railroad Commission Rules were observed:

SWR 8: Standing water was affecting an area approximately 25 feet by 100 feet by 3 inches deep within the firewalls at the battery site. The water was field tested to contain approximately 1,100 mg/L chlorides.
Any leaks or failed equipment must be repaired or replaced to prevent future spills. Pickup and properly dispose of the standing produced water. Till, turn and aerate the produced water spill site. It is suggested that organic material such as hay/cotton seed hulls be mixed at the site to enhance the remediation process.

SWR 13: The wellhead was secure.

SWR 17: 8 PSIG was experienced by the bradenhead. The pumper for the operator arrived on location and blew the pressure down to zero PSIG. The field inspector rechecked the pressure gauge after five minutes and reported that the pressure gauge reflected zero PSIG. Previously, a pressure test was conducted on this well verifying that the pressure experienced by the bradenhead is not caused by a loss of casing integrity. Since the 8 PSIG is lower than the previously noted 32 PSIG experienced by the bradenhead, the operator is not in violation of SWR 17.

Reinspection is scheduled for the week of March 11, 2013. Failure to rectify the cited violations prior to this follow up inspection will result in the well being sealed and the P-4 Certificate of Compliance being canceled. A certified letter is being issued to the operator this date. **Please direct any questions with regard to this complaint to Gene Ortiz at (325) 677-3545.**

Sincerely,

Gene Ortiz
Engineering Specialist

GO/gm

☑ Assistant District Director
☐ District Director

cc: Field Operations, RRC, Austin

Glenn Osterhoudt
601 Spring Creek Parkway
Weatherford, TX 76087

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

February 12, 2013

CERTIFIED MAIL NO.: 7012 1640 0001 2047 8805

LEGEND NATURAL GAS IV, LP (495557)
15021 KATY FWY STE 200
HOUSTON, TX 77094-1914

RE: NOTICE OF INTENT TO CANCEL P-4 CERTIFICATE OF COMPLIANCE AND INTENT TO SEAL

RRC DISTRICT: 7B RRC IDENTIFICATION NUMBER: 253732
FIELD: NEWARK, EAST (BARNETT SHALE)
LEASE NAME: BUTLER UNIT
COUNTY: HOOD

THE ABOVE-REFERENCED PROPERTY IS CURRENTLY IN VIOLATION OF RAILROAD COMMISSION RULES AND REGULATIONS. THE VIOLATION(S) LISTED BELOW MUST BE RESOLVED WITHIN 25 DAYS OF THE DATE OF THIS LETTER OR THE P-4 CERTIFICATE OF COMPLIANCE WILL BE CANCELED AND A SEAL ORDER ISSUED.

YOU MAY REQUEST A HEARING TO CONTEST THIS DETERMINATION. YOUR WRITTEN REQUEST, WITH A COPY OF THIS LETTER ATTACHED, MUST BE RECEIVED AT THE ADDRESS LISTED BELOW WITHIN 10 DAYS OF THE DATE OF THIS LETTER.

VERY TRULY,

Gene Ortiz
Engineering Specialist

VIOLATION(S): SWR 8; Glenn Osterhoudt Complaint No. 7B-10292

Reinspection is scheduled for the week of: March 11, 2013

DIRECT ALL INQUIRIES TO: Gene Ortiz, Job No. 13-1501
PHONE NUMBER: (325)-677-3545

IF THE CERTIFICATE OF COMPLIANCE IS CANCELLED, THE COMMISSION MAY NOT ISSUE A NEW CERTIFICATE OF COMPLIANCE UNTIL THE OPERATOR SUBMITS TO THE COMMISSION A NON-REFUNDABLE FEE OF $750 FOR EACH SEVERANCE OR SEAL ORDER ISSUED. IT IS UNLAWFUL FOR THE OPERATOR TO USE A WELL FOR PRODUCTION, INJECTION, OR DISPOSAL, OR FOR A GATHERER TO TRANSPORT OIL OR GAS FROM THE LEASE UNTIL A NEW CERTIFICATE OF COMPLIANCE HAS BEEN ISSUED. THE COMMISSION MAY IMPOSE AN ADMINISTRATIVE PENALTY OF UP TO $10,000 FOR EACH VIOLATION OF THIS PROHIBITION.

GO/mm

☐ Assistant District Director
☐ District Director

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Compliance Section

District Office
INSPECTION REPORT

D-O
rev. 6/07

JOB NO. 13-1501 -00
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV LP.
LEASE/FACILITY BUTLER UNIT
WELL No.(s) 1H
FIELD NEWARK, EAST (BARNETT SHALE)
COUNTY PARKER ☐ COSTAL MGT AREA
☑ COMPLAINT NO.
COMPLAINANT NAME GLENN OSTERHOUDT
DIRECTIONS

LEASE/ID (9) 253732
DRILL PMT. NO.
PLANT NO.
PIT PMT. NO.
PIPELINE PMT NO.
OTHER
LE DOCKET
SFP CODE
SFCU CODE

☐ MUST WITNESS
☐ Field Initiated
☑ Taken By
☑ District ☐ Austin
☐ Backcheck
☐ Co-inspection
☐ Sweep
TOTAL:
UIC WELLS INSP
WELLS INSP 1
SITES INSP 1

% TIME	UIC	ENV	SITE REM
LEGAL ENF		PRO/PROD	TERRA
SFP		OTHER	

GPS COORDINATES: ☐ NO ☑ YES LOG# 1H
LAT 32.55759 LONG 97.78757

ACTIVITY (check appropriate boxes)

☐ BLOWOUT	P	☐	OIL SPILL (NON SENS)
☐ COM. SURFACE DISP. FAC.	Q	☐	OIL SPILL (SENS)
☐ COM. DISPOSAL WELL	R	☐	PIT INSPECTION
☐ FLARE/VENT	S	☐	PLANT INSP
☐ DISPOSAL/INJECTION	T	☐	PLUGGING (OPER)
☐ DRILLING RIG	U	☐	PLUGGING (SFP)
☐ FIRE	V	☑	PROD WATER SPILL
☐ H2S COMPLIANCE INSP.	W	☐	PROD TEST
☐ H2S INCIDENT	X	☐	PROD/INT CASING
☐ HYDROCARBON STRING	Y	☐	SEAL WELL
☑ LEASE INSPECTION	Z	☐	SITE ASSMT (SPCL#)
☐ MIT	AA	☐	SITE CLEAN UP SFCU
☐ MINOR PERMIT	BB	☐	SURFACE CASING
☐ OFFICE	CC	☐	WASTE HAULER
☐ OTHER			

FIELD INSPECTION STATUS		COMPLIANCE yes	COMPLIANCE no	Prev viols.	New viols.	Total viols.
SWR 2	Access to Property	☑	☐			
SWR 3	Signs	☑	☐			
SWR 8	Water Protection	☐	☑		1	1
SWR 9	Disposal Wells	☐	☐			
SWR 13	Casing/Cementing	☑	☐			
SWR 14(B)(2)	Inactive wells	☑	☐			
SWR 17	Pressure on Bradenhead	☐	☑		1	1
SWR 21	Firewalls	☑	☐			
SWR 22	Protection of Birds	☐	☐			
SWR 27	Gas Metering	☑	☐			
SWR 32	Flaring/Venting	☐	☐			
SWR 36	Hydrogen Sulfide	☐	☐			
SWR 46	Injection Wells	☐	☐			
SWR 91	Oil Spill Clean-up	☐	☐			
OTHER		☐	☐			
OTHER		☐	☐			

Comments: NATURE: GAS LEAK AT WELL #1H ON THE SURFACE CASING.
SWR 2- ACCESS OK
SWR 3- SIGNS POSTED AT THE REQUIRED LOCATIONS.
SWR 8- INACTIVE LEAK. PHOTO 0898. THERE IS STANDING WATER WITHIN THE FIREWALLS AT THE BATTERY SITE APPROXIMATELY 25' X 100' X 3" DEEP. FIELD TESTED THE CHLORIDES @ 1100 MG/L. GREEN MOSS VISIBLE IN THE WATER ON THE BACK SIDE OF THE BATTERY. THERE IS PEA GRAVEL GRAVEL WITHIN THE FIREWALLS APPROXIMATELY 5" DEEP.
SWR 13- WELLHEAD SECURE.
SWR 14/27- PRODUCING WELL PER GAS METER. PRODUCING @ 455 MCFPD. PHOTO 0897
SWR 17- 8 PSIG ON THE BRADENHEAD PER GAUGE. PHOTO 0896.
SEE DA

CERTIFY THIS DATA IS TRUE AND COMPLETE:
Bobby L Scheuman
ID NO. 077 DATE 02/06/13

	MILEAGE	TIME	LUNCH
START:	44,471	1200	60 (MIN)
END:	44,640	1800	☐ Job Interrupt

OFFICE REVIEW
BY
DATE

Oil and Gas Division
Compliance Section

INSPECTION REPORT
ATTACHMENT SHEET

JOB NO. 13-1501
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV LP
LEASE/FACILITY# (9) 253732

LEASE/FACILITY BUTLER UNIT WELL #1H
COUNTY PARKER

COMPLAINT NAME OSTERHOUDT
COMPLAINT NO. 10292

COMPANY REP. FOR LEGEND DROVE UP ON LOCATION. I DISCUSSED THE SWR 8 & 17 FINDINGS WITH RICHARD SHAFFER, THE LEASE OPERATOR FOR LEGEND. RICHARD SHAFFER STATED HE BLOWS THE WELL DOWN EVERY COUPLE OF WEEKS. HE ASKED IF HE COULD BLOW IT DOWN WHILE WE WERE PRESENT TO SEE THE PRESSURE WILL BLOW DOWN TO ZERO. I TOLD HIM THAT WAS FINE & TO DO WHAT HE NORMALLY DOES.

MR. SHAFFER BLEW THE BRADENHEAD PRESSURE OFF TO ZERO, AND THE PRESSURE REMAINED AT ZERO WHILE WE WERE ON LOCATION. RECHECKED THE PRESSURE AFTER 5 MINUTES, AND THE PRESSURE REMAINED ON ZERO PER THE GAUGE.

CERTIFY THIS DATA IS TRUE AND COMPLETE:
Bobby L Scheuman

CH NO. 077 DATE 02/06/13 Page 2 of 3

OFFICE REVIEW
BY
DATE

Oil and Gas Division
Compliance Section

INSPECTION REPORT
ATTACHMENT SHEET

JOB NO. 13-1501
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV LP.
LEASE/FACILITY# (9) 253732
LEASE/FACILITY BUTLER UNIT
COUNTY PARKER
COMPLAINT NAME OSTERHOUDT
COMPLAINT NO. 10292

NOT DRAWN TO SCALE

NORTH

PHOTO 0897

↓

WELL #1H ←

↑

PHOTO 0896

APPROXIMATE 100' X 25' X 3" AREA OF WATER WITHIN THE DIKES AT THE BATTERY FIELD TESTED AT 1100 MG/L CHLORIDES

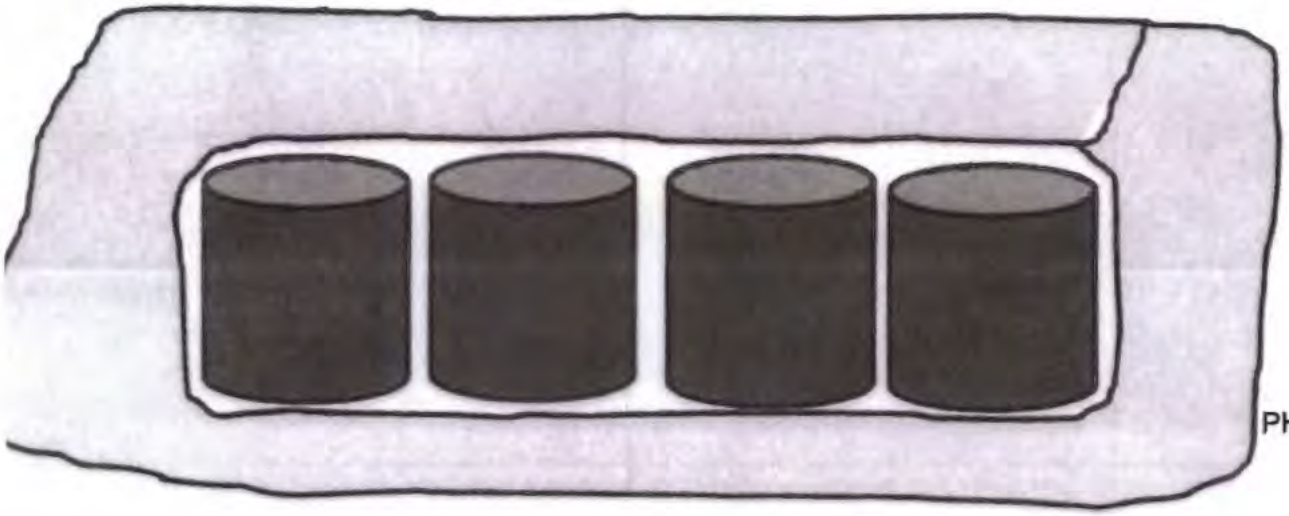

PHOTO 0898 ←

CERTIFY THIS DATA IS TRUE AND COMPLETE:
Bobby L Scheuman

CH NO. 077 DATE 02/06/13 Page 3 of 3

OFFICE REVIEW
BY
DATE

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Compliance Section

District Office
INSPECTION REPORT

D-O
rev. 6/07

JOB NO. 13-1501 -01
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV LP
LEASE/FACILITY BUTLER UNIT
WELL No.(s) 1H
FIELD NEWARK, EAST (BARNETT SHALE)
COUNTY PARKER ☐ COSTAL MGT AREA
☑ COMPLAINT NO.
COMPLAINANT NAME GLENN OSTERHOUDT
DIRECTIONS

LEASE/ID (9)253732
DRILL PMT. NO.
PLANT NO.
PIT PMT. NO.
PIPELINE PMT NO.
OTHER
LE DOCKET
SFP CODE
SFCU CODE

☐ MUST WITNESS
☐ Field Initiated
☑ Taken By
☑ District ☐ Austin
☑ Backcheck
☑ Co-inspection
☐ Sweep
TOTAL:
UIC WELLS INSP
WELLS INSP 1
SITES INSP 1

% TIME	UIC	ENV	SITE REM
LEGAL ENF		PRO/PROD	TERRA
SFP		OTHER	

GPS COORDINATES: ☐ NO ☑ YES LOG# 1H
LAT 32.55759 LONG 97.78757

ACTIVITY (check appropriate boxes)

☐	BLOWOUT	P ☐	OIL SPILL (NON SEN)
☐	COM. SURFACE DISP. FAC.	Q ☐	OIL SPILL (SENS)
☐	COM. DISPOSAL WELL	R ☐	PIT INSPECTION
☐	FLARE/VENT	S ☐	PLANT INSP
☐	DISPOSAL/INJECTION	T ☐	PLUGGING (OPER)
☐	DRILLING RIG	U ☐	PLUGGING (SFP)
☐	FIRE	V ☑	PROD WATER SPILL
☐	H2S COMPLIANCE INSP.	W ☐	PROD TEST
☐	H2S INCIDENT	X ☐	PROD/INT CASING
☐	HYDROCARBON STRING	Y ☐	SEAL WELL
☑	LEASE INSPECTION	Z ☐	SITE ASSMT (SFCU)
☐	MIT	AA ☐	SITE CLEAN UP SFCU
☐	MINOR PERMIT	BB ☐	SURFACE CASING
☐	OFFICE	CC ☐	WASTE HAULER
☐	OTHER		

FIELD INSPECTION STATUS		COMPLIANCE yes	COMPLIANCE no	Prev viols.	New viols.	Total viols.
SWR 2	Access to Property	☐	☐			
SWR 3	Signs	☐	☐			
SWR 8	Water Protection	☐	☐			
SWR 9	Disposal Wells	☐	☐			
SWR 13	Casing/Cementing	☐	☐			
SWR 14(B)(2)	Inactive wells	☐	☐			
SWR 17	Pressure on Bradenhead	☐	☐			
SWR 21	Firewalls	☐	☐			
SWR 22	Protection of Birds	☐	☐			
SWR 27	Gas Metering	☐	☐			
SWR 32	Flaring/Venting	☐	☐			
SWR 36	Hydrogen Sulfide	☐	☐			
SWR 46	Injection Wells	☐	☐			
SWR 91	Oil Spill Clean-up	☐	☐			
OTHER		☐	☐			
OTHER		☐	☐			

Comments: NATURE; GAS LEAK AT WELL #1H ON THE SURFACE CASTING
WR 2- ACCESS OK
WR 3- SIGNS POSTED AT REQUIRED LOCATIONS
WR 8- INACTIVE LEAK. PHOTO 0898 THER IS STANDING WATER WITHIN THE FIREWALL AT THE
TTERY SITE APPROXIMATELY 25'X100'X3" DEEP. FIELD TESTED THE CHLORIDES AT 1100MG/L
EEN MOSS VISIBLE IN THE WATER ON THE BACK SIDE OF THE BATTERY. THERE IS PEA GRAVEL
THIN THE FIREWALL APPROXIMATELY 5" DEEP.
/R 13- WELLHEAD SECURE
/R 14/27- PRODUCING WELL PER GAS METER,PRODUCING @ 455MCFPD PHOTO 0897
/R 17-8PSIG ON THE BRADENHEAD PER GAUGE PHOTO 0896 SEE DA

RTIFY THAT DATA IS TRUE AND COMPLETE

H NO. 575 DATE 02/06/13

	MILEAGE	TIME	LUNCH
START:	28,402	12:00	60 (MIN)
END:	28,445	18:00	☐ Job Interrupt

OFFICE REVIEW
BY
DATE

Oil and Gas Division
Compliance Section

INSPECTION REPORT
ATTACHMENT SHEET

JOB NO. 13-1501
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV LP
LEASE/FACILITY# (9) 253732

LEASE/FACILITY BUTLER UNIT
COUNTY PARKER

COMPLAINT NAME OSTERHOUDT
COMPLAINT NO. 10292

SEE BOBBY'S DA

RTIFY THIS DATA IS TRUE AND COMPLETE:

H NO. 575 DATE 02/06/13 Page 3 of 3

OFFICE REVIEW
BY
DATE

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Compliance Section

pw
District Office
INSPECTION REPORT

D-O
rev. 6/07

JOB NO. 13 6087
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV, LP
LEASE/FACILITY TEAL UNIT
WELL No.(s) 1H
FIELD NEWARK, EAST (BARNETT SHALE)
COUNTY HOOD ☐ COSTAL MGT AREA
☐ COMPLAINT NO.
COMPLAINANT NAME
DIRECTIONS
PETER POPE

LEASE/ID 253779
DRILL PMT. NO.
PLANT NO.
PIT PMT. NO.
PIPELINE PMT NO.
OTHER
LE DOCKET
SFP CODE
SFCU CODE

☐ MUST WITNESS
☑ Field Initiated
☐ Taken By
☐ District ☐ Austin
☐ Backcheck
☐ Co-inspection
☐ Sweep
TOTAL:
UIC WELLS INSP
WELLS INSP 1
SITES INSP 1

% TIME	UIC	ENV	SITE REM
LEGAL ENF		PRO/PROD	TERRA
SFP		OTHER	

GPS COORDINATES: ☐ NO ☑ YES LOG#
LAT LONG

ACTIVITY (check appropriate boxes)

☐	BLOWOUT	P ☐	OIL SPILL (NON SEN)
☐	COM. SURFACE DISP. FAC.	Q ☐	OIL SPILL (SENS)
☐	COM. DISPOSAL WELL	R ☐	PIT INSPECTION
☐	FLARE/VENT	S ☐	PLANT INSP
☐	DISPOSAL/INJECTION	T ☐	PLUGGING (OPER)
☐	DRILLING RIG	U ☐	PLUGGING (SFP)
☐	FIRE	V ☐	PROD WATER SPILL
☐	H2S COMPLIANCE INSP.	W ☐	PROD TEST
☐	H2S INCIDENT	X ☐	PROD/INT CASING
☐	HYDROCARBON STRING	Y ☐	SEAL WELL
☑	LEASE INSPECTION	Z ☐	SITE ASSMT (SFCU)
☐	MIT	AA ☐	SITE CLEAN UP SFCU
☐	MINOR PERMIT	BB ☐	SURFACE CASING
☐	OFFICE	CC ☐	WASTE HAULER
☐	OTHER		

FIELD INSPECTION STATUS		COMPLIANCE yes	COMPLIANCE no	Prev viols.	New viols.	Total viols.
SWR 2	Access to Property	☑	☐			
SWR 3	Signs	☑	☐			
SWR 8	Water Protection	☑	☐			
SWR 9	Disposal Wells	☐	☐			
SWR 13	Casing/Cementing	☐	☐			
SWR 14(B)(2)	Inactive wells	☑	☐			
SWR 17	Pressure on Bradenhead	☑	☐			
SWR 21	Firewalls	☑	☐			
SWR 22	Protection of Birds	☐	☐			
SWR 27	Gas Metering	☐	☐			
SWR 32	Flaring/Venting	☐	☐			
SWR 36	Hydrogen Sulfide	☐	☐			
SWR 46	Injection Wells	☐	☐			
SWR 91	Oil Spill Clean-up	☐	☐			
OTHER		☐	☐			
OTHER		☐	☐			

Comments:

SEE DA

CERTIFY THIS DATA IS TRUE AND COMPLETE:
T. Sweet
RRC NO. 410 DATE 05/21/13

	MILEAGE	TIME	LUNCH
START:	X	1000	(MIN)
END:	X	1030	☐ Job Interrupt

OFFICE REVIEW
BY
DATE

Oil and Gas Division
Compliance Section

INSPECTION REPORT
ATTACHMENT SHEET

rev 5/06

JOB NO. 13
DISTRICT 7B

OPERATOR **LEGEND NATURAL GAS IV, LP** LEASE/FACILITY# **253779**

LEASE/FACILITY **TEAL UNIT** COUNTY **HOOD**

COMPLAINT NAME _____ COMPLAINT NO. _____

ENTRANCE N32.55910°, W97.78907°
SWR 2
ACCESS OK

SWR 3
SIGN POSTED

WELL & BATTERY N32.55777°, W97.78760°
SWR 3
SIGN POSTED

SWR 8
NO VISIBLE POLLUTION

SWR 14B2
ACTIVE - PRODUCING

SWR 17
GAUGE IS READING 14 PSI, PHOTO #1809
CALLED FOR A LEASE OPERATOR
JOSH PARKER, CO REP, ARRIVED ON LOCATION
WE CLOSED 2" BALL VALVE & NEEDLE VALVE
WE REMOVED GAUGE
GAUGE ZERO OUT
WE OPEN ALL VALVES, PRESSURE BLED OFF LESS THAN 10 SECONDS, AIR ONLY
WE CLOSED ALL VALVES
WE-PLACED GAUGE
WE-OPEN ALL VALVES, GAUGE IS READING 0 PSI
AFTER APPROXIMATELY 15 MINUTES, GAUGE IS STILL READING 0 PSI

CERTIFY THIS DATA IS TRUE AND COMPLETE:

T. Sweet

CH NO. 410 DATE 05/21/13 Page 2 of 2

OFFICE REVIEW
BY _____
DATE _____

RAILROAD COMMISSION OF TEXAS
Oil and Gas Division
Compliance Section

District Office
INSPECTION REPORT

D-O
rev. 8/07

JOB NO. 14 - 142
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV, LP
LEASE/FACILITY TEAL UNIT
WELL No.(s) 1H
FIELD NEWARK, EAST (BARNETT SHALE)
COUNTY HOOD ☐ COSTAL MGT AREA
☐ COMPLAINT NO.
COMPLAINANT NAME
DIRECTIONS
PETER POPE

LEASE/ID 253779
DRILL PMT. NO.
PLANT NO.
PIT PMT. NO.
PIPELINE PMT NO.
OTHER
LE DOCKET
SFP CODE
SFCU CODE

☐ MUST WITNESS
☑ Field Initiated
☐ Taken By ☐ District ☐ Austin
☐ Backcheck
☐ Co-inspection
☐ Sweep
TOTAL:
UIC WELLS INSP
WELLS INSP 1
SITES INSP 1

% TIME	UIC	ENV	SITE REM
LEGAL ENF		PRO/PROD	TERRA
SFP		OTHER	

GPS COORDINATES: ☐ NO ☑ YES LOG#
LAT LONG

ACTIVITY (check appropriate boxes)

A	☐ BLOWOUT	P	☐ OIL SPILL (NON SEN)
B	☐ COM. SURFACE DISP. FAC.	Q	☐ OIL SPILL (SENS)
C	☐ COM. DISPOSAL WELL	R	☐ PIT INSPECTION
D	☐ FLARE/VENT	S	☐ PLANT INSP
E	☐ DISPOSAL/INJECTION	T	☐ PLUGGING (OPER)
F	☐ DRILLING RIG	U	☐ PLUGGING (SFP)
G	☐ FIRE	V	☐ PROD WATER SPILL
H	☐ H2S COMPLIANCE INSP.	W	☐ PROD TEST
I	☐ H2S INCIDENT	X	☐ PROD/INT CASING
J	☐ HYDROCARBON STRING	Y	☐ SEAL WELL
K	☑ LEASE INSPECTION	Z	☐ SITE ASSMT (SFCU)
L	☐ MIT	AA	☐ SITE CLEAN UP SFCU
M	☐ MINOR PERMIT	BB	☐ SURFACE CASING
N	☐ OFFICE	CC	☐ WASTE HAULER
O	☐ OTHER		

FIELD INSPECTION STATUS		COMPLIANCE yes	COMPLIANCE no	Prev viols.	New viols.	Total viols.
SWR 2	Acreage Assignment	☑	☐			
SWR 3	Signs	☑	☐			
SWR 8	Water Protection	☑	☐			
SWR 9	Disposal Wells	☐	☐			
SWR 13	Casing/Cementing	☐	☐			
SWR 14(B)(2)	Inactive wells	☑	☐			
SWR 17	Pressure on Bradenhead	☑	☐			
SWR 21	Firewalls	☑	☐			
SWR 22	Pollution and Erosion	☐	☐			
SWR 27	Gas Metering	☐	☐			
SWR 32	Flaring/Venting	☐	☐			
SWR 36	Hydrogen Sulfide	☐	☐			
SWR 46	Injection Wells	☐	☐			
SWR 91	Oil Spill Clean-up	☐	☐			
OTHER		☐	☐			
OTHER		☐	☐			

Comments:

SEE DA

CERTIFY THIS DATA IS TRUE AND COMPLETE:
T. Shutt
TECH NO. 410 DATE 01/03/14

	MILEAGE	TIME	LUNCH
START:	105337	0700	60 (MIN)
END:	105389	0900	☐ Job Interrupt

OFFICE REVIEW
BY
DATE

Oil and Gas Division
Compliance Section

INSPECTION REPORT
ATTACHMENT SHEET

rev 5/06

JOB NO. 14
DISTRICT 7B

OPERATOR LEGEND NATURAL GAS IV, LP
LEASE/FACILITY# 253779
LEASE/FACILITY TEAL UNIT
COUNTY HOOD
COMPLAINT NAME
COMPLAINT NO.

ENTRANCE N32.55910°, W97.78907°
SWR 2
ACCESS OK

SWR 3
SIGN POSTED

WELL & BATTERY N32.55803°, W97.78766°
SWR 3
SIGN POSTED

SWR 8
NO VISIBLE POLLUTION

SWR 14B2
ACTIVE - PRODUCING

SWR 17
GAUGE IS READING 12 PSI, PHOTO #3785
CALLED FOR A LEASE OPERATOR
BO STOKES, CO REP, ARRIVED ON LOCATION
HE CLOSED 2" BALL VALVE & NEEDLE VALVE
HE REMOVED GAUGE
GAUGE ZERO OUT
HE OPEN ALL VALVES, PRESSURE BLED OFF LESS THAN 10 SECONDS, AIR ONLY
HE CLOSED ALL VALVES
RE-PLACED GAUGE
RE-OPEN ALL VALVES, GAUGE IS READING 0 PSI
AFTER APPROXIMATELY 15 MINUTES, GAUGE IS STILL READING 0 PSI

CERTIFY THIS DATA IS TRUE AND COMPLETE:
T. Sweet

ECH NO. 410 DATE 01/03/14 Page 2 of 2

OFFICE REVIEW
BY
DATE